UNIVERSIDAD AUTÓNOMA DE MADRID

Faculty of Business and Economic Sciences

Department of Economic Analysis (Economic Theory and Economic History)

Doctoral Thesis

"Trade and Foreign Direct Investment in the Middle East and North African Region: Addressing the Role of Institutions and Political Instability"

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Executive Summary

Short Summary

The motivation behind this Doctoral Thesis emerges from the need to analyse three objectives that are believed to have eminent policy implications on the acceleration of MENA Region's Trade flows and investment climate. i) to consider how higher intra-regional trade flows among MENA countries could be attained; once we control for the governance regimes and trade barriers in the region. ii) to shed light on the extent to which the Agadir Association agreement has fostered inter-regional sectoral trade flows between the Agadir countries and E.U. As well to detect the variation in the composition and structure of final versus intermediate sector specific export flows for Agadir countries, since the adoption of Pan-Euro Diagonal Rules of Origin. iii) to analyse how the expected fragility of MENA countries' institutions affected FDI climate after the 2011 incidents through an original qualitative dataset on FDIs in Egypt.

The methodological approach addressing the first objective was developed by using a Bilateral Trade Gravity Model to measure MENA's merchandise intra-regional trade flows. The dataset covered a timeframe of 25 years up till 2010 and used unbalanced panel data to account for episodes of significant political incidents in the region. Data on GDP is derived from World Bank Development Indicators (2010) and data on distance, contiguity, colonial and language affinities is extracted from CEPII's Gravity Dataset 2014 (TRADHIST). A set of intra-regional dummies are included to account for the Region's sub-regional free trade initiatives. More importantly, the model's explanatory power was augmented by adding Polity IV and Trade Freeness indices converted into dummies.

Regarding the first objective related to the estimation of MENA's intra-regional trade flows, it was captured through the Polity IV dummy, which was decomposed further into: Polity _demo[1] for country pairs of democratic institutions, Polity_mixed[2] for countries pairs of mixed regimes and Polity_autoc[3] for country pairs of autocratic institutions and as well Trade Freeness dummy. We can detect that the transformation of MENA countries' governance and regimes from autocratic to democratic regimes will lead to higher trade intensities between the region's trading partners. Never the less, we are not able to confirm that MENA's intra-regional trade flows are necessarily higher, when both trading partners in the Region are democratic countries. As for trade freeness dummy, it exhibited highly significant results to increase MENA's intra-regional trade across all estimations. (Duc and Lavallée and Siroën, 2008; Bhattacharya and Worlde, 2009; Lutmar, 2011; Bacchetta et al., 2012)

[1] Poltiy_Demo: dummy for democratic countries at threshold above 5 points on the Polity IV index score

[2] Polity Mixed: dummy for countries with mixed combined regimes of both democracies and autocracies and their threshold on polity IV is between [-5,5]

[3] Polity_autoc: dummy for countries that are declared as having complete autocratic regimes and their threshold on the index is less than -5

As previously mentioned the second objective considers to what extent the Agadir Association agreement signed between (Egypt, Jordan, Morocco and Tunisia and E.U.) fostered sector specific flows between its 4 countries and the E.U., when Pan-Euro Diagonal Rules of Origin are adopted. We also seek to exhibit the impact of Pan-Euro RoO on changing the spatial structure and re-directing the intensity of trade flows, particularly towards higher intermediates and component parts to flow through Agadir_4, where products will be processed and re-exported to E.U. countries directly (Augier and Gasiorek and Lai Tong, 2007).

To the best interest of addressing this objective, a two-fold methodological approach was used to estimate inter-regional sectoral flows between Agadir countries and E.U. First step started by conducting a 'Hierarchal Cluster Analysis' based on Porter's (2010) and Montalbano and Nenci (2010) to identify the relevant sector specific flows, that could be subject to treatment with Pan-Euro Rules of Origin. Then sector specific flows for the 3 clusters will be later introduced into a bilateral trade gravity model in consistency with the estimation methodologies previously motivated by (Anderson and Wincoop, 2004; Silva and Tenreyro, 2006; Chaney, 2008; Helpman et al., 2008). The gravity model data was based on the CEPII Gravity dataset 2010 and (TRADPROD) with ISIC classifications, re-calibrated to fit RoO sector specific flows. Next step we combined both the bilateral gravity equation and variables to control for treatment by regime wide diagonal Pan-Euro RoO on sectoral flows performed by means of the 'The Double Differences Approach' (DID). This approach is used for modelling the impact of trade policies on sector specific flows elaborated by Estevadeordal and Suominen (2004), Gretton and Gali (2005), Augier et al. (2007) and Gasiorek (2008) for other World RoO regimes. In the context of Agadir agreement, two treatment groups I and II composed of 50 and 30 Pan-Euro diagonal RoO applicant countries respectively were constructed. Equivalently, two control groups I and II comparable in all aspects except for treatment with Pan-Euro RoO were also created.

This third objective of the Doctoral Thesis analyzes the expected fragility of MENA countries' institutions and its impact on FDI climate after the 2011 incidents. We address this objective through qualitative research methodologies, which aim to assess the case of FDI climate in Egypt and the behavior of foreign investors after the 2011incidents. We present an original dataset on FDIs in Egypt after 2011 incidents. The data was collected through qualitative questionnaires, which targeted 92 medium-sized foreign and Egyptian multinationals. Moreover, the questionnaires are complemented by 12 In-depth interviews to obtain specific information regarding institutional challenges facing investors on a sector specific level (Ziacik, 2000; Bastos and Nasir, 2004; Tridico, 2006; Klaus et al, 2009; Hotho and Pederson, 2012; Garridoet al., 2013; Hanafy, 2015).

First step all questionnaire data are coded and prepared for econometric analysis and we conduct the 'Principal Component Analysis'[4] (PCA) to mitigate the dimensionality problem and reduce the number of variables to be added in the estimation. The PCA resulted in three groups of components introduced into the logistic regression employed to determine which set of components are the most crucial ones to Egypt's investment climate. In addition, we detect a common thread of results between interviewees of the 12 in-depth interviews and questionnaire respondents on the factors that are indispensable to investors.

Detailed Description of Each Chapter:

The Doctoral thesis is structured into 5 main chapters including the introduction and conclusion accordingly:

Chapter 1: Introduction:

This chapter introduces the region to the reader by giving the general overview and characteristics about MENA region. It addresses the gap between MENA's actual and potential intra-regional and inter-regional trade flow. It presents some facts about MENA's regional trade flow intensity, episodes of political and economic instabilities in MENA, Presence of non-tariff, technical and procedural barriers to trade, conflicting regulations and procedures between trade agreements in the Region, trade in manufactured and value-added content for the Region's countries and finally it provides a brief overview about FDI Climate for MENA countries in transition. The rest of the chapter more importantly lays the foundation for the standard Gravity Equation, which will be the framework on which all the econometric analysis in the rest of chapters will be based.

Chapter 2: Would Intra-Regional Trade between MENA Countries Increase, when they are more Democratic and less Bureaucratic?

This chapter considers aggregate intra- regional trade flows between MENA countries, once we control for governance, regimes changes and trade freeness variables and their impact on trade institutions. The employed 'Bilateral Trade Gravity Model' measures MENA's aggregate intra-regional trade flows. The model's power was augmented by capturing the nexus between MENA's governing and trade institution through adding Polity_IV and trade freeness indices (decomposed into Polity_demo[5], Polity_mixed[6] and

[4] Principal Component Analysis: It is a methodology to identify the patterns of data and express data to highlight similarities and differences

[5] Poltiy_Demo: dummy for democratic countries at threshold above 5 points on the Polity IV index score

[6] Polity Mixed : dummy for countries with mixed combined regimes of both democracies and autocracies and their threshold on polity IV is between [-5,5]

Polity_autoc[7]) dummies, in addition to 4 dummies acting as proxies to the four sub-regional trade initiatives in MENA, known as: Gulf Cooperation Council (GCC), Arab Maghreb Union (AMU) , Agadir agreement countries (Agadir_4) and Pan Arab Free Trade Agreement (PAFTA) .

Testing the four underlying scenarios by adding the respective dummies had shown the transformation of MENA countries from autocratic to democratic regimes, will reduce trade costs and increase intensify of trade flows between intra-regional trading partners in MENA. Nevertheless, similarity between governance of both trading partners; given that both trading partners in MENA are democratic, does not necessarily guarantee the presence of higher intra-regional trade intensity between both democratic partners. The significance of the results extracted were in consistency with the significance of Polity IV and Trade freeness dummies detected by the literature for Duc and Lavallée and Siroën (2008); Bhattacharya and Wolde (2009); Lutmar (2011); Bacchetta et al. (2012). for other regions. Additional results driven from this chapter asserted that capturing the nexus between Polity_IV and Trade Freeness dummy variables together, led to 104 percent increase in Intra_MENA trade flows. Finally, PAFTA and Agadir dummies contribute a high portion of their flows to MENA's intra-regional merchandise trade and at same time they represent countries of mixed regimes and are not all democratic.

Chapter 3: What Happens to Trade Flow when Rules of Origin are relaxed? An empirical analysis using sector specific flows between Agadir_4 and the E.U

In this chapter, we examined the extent to which the Agadir Association agreement has fostered inter regional trade between Agadir_4 countries and E.U. by means of the gravity equation, we control for the evolution of Agadir agreement's sector specific flows to (RoW) and by looking at the remarkable variation in the spatial/sectoral structure of trade since the inception of the agreement. As a key contribution of this chapter, we consider how the adoption of Pan-Euro Diagonal Rules of origin (RoO) between Agadir_4 and E.U. reduced the percentage of domestic value content threshold, in favor of cumulating regional value content in the sectors and products from outside the agreement's preferential area at a lower cost. This result is in line with what was suggested by Augier and Gasoriek and Lai Tong, 2007. The results of treatment were shown to intensify exports of some sectors of intermediate components to flow through Agadir_4 to be considered the hub where those components are accumulated and re-exported to E.U. countries.

The two phases of methodological approach started by conducting a Cluster Analysis to identify relevant sector specific flows between Agadir_4 and E.U. Then the 3 cluster groups resulting from the analysis were introduced into the 'Gravity Equation' estimated by 'Pseudo Poisson Maximum Likelihood

[7] Polity_autoc: dummy for countries that are declared as having complete autocratic regimes and their threshold on the index is less than -5

Estimator'[8] (PPML). In the second phase, export flows were exposed to treatment with Pan-Euro RoO through 'Double Differences' approach[9](Anderson and Wincoop, 2004; Estevadeordal and Suominen, 2004; Gretton and Gali, 2005; Silva and Tenreyro, 2006; Augier et al., 2007; Chaney, 2008; Helpman et al., 2008; Gasiorek 2008).The analysis resulted in three main clusters of sector specific export flows between Agadir_4 and E.U. with cluster 1 for Petrochemical related sectors, cluster 2 consumer non-durable goods and finally cluster 3 for components and spare parts of machinery.

Further results asserted that diagonal RoO treatment contributed to enhancing Agadir's_4 exports and intermediate flows to the E.U. on average by a factor of 2.7 and 1.3 respectively. It also contributed to changing Agadir_4 sector specific trade structure and composition to the E.U._26 countries. The Pan-Euro diagonal RoO cumulation system granted more permissiveness to its members to obtain their inputs at highly competitive prices from world trading partners outside their agreement with E.U. Results as well had shown that intermediate flows for some sectors between Agadir_4 and E.U. have out grown by 48 times, after Pan-Euro diagonal RoO were adopted; which was the case of Rubber Products.

Chapter 4: Will the Quality of Institutions Determine Egypt's Investment Climate? A Qualitative Survey and In-depth Interviews on the case of FDI in Egypt

The chapter seeks to distinguish between the behaviour of foreign and Egyptian investors after the 2011 upheavals in Egypt (Onyeiwu,2003; Méon and Sekkat, 2004; Chan and Gemayel, 2004; Kamaly, 2007). Did many foreign investors leave directly after the revolts or they held their investments; in light of the deeply-rooted fragility of institutions which became evident after the 2011 incidents (UNDP, 2014; OECD, 2015; GAFI, 2015; IMF Survey,2015). One of the original datasets on FDIs in Egypt after 2011 revolts was gathered through 92 qualitative questionnaires and 12 In-depth interviews targeting medium-sized investors. The Questionnaire was designed to include three parts. The first part incorporated data demographics about FDIs, meanwhile, second and third parts introduced questions to consider the quality of economic and political institutions and how they determined FDI climate in Egypt. After the gathering, coding and preparing of questionnaire data, a 'Principal Component Analysis' (PCA) was conducted to reduce the dimension of variables used in the Logistic regression.

Results of PCA and logistic regression confirm together that a one standard deviation increase in the categories of variables affecting protection of investors' property rights, doing business enablers and

[8] Poisson Maximum Likelihood Estimator: It is the procedure of finding the value of one or more parameters for a given statistic which makes the known likelihood distribution a maximum.

[9] Double Differences Approach: typically known as a quasi-experimental design used to estimate the effect of a specific intervention or treatment of an enactment of policy or large-scale program by comparing changes over time between a population that is enrolled in the program (treatment group) and population that is not (control group)

quality of macroeconomic institutions; led to 74 percent variability in Egypt's investment climate at high degrees of significance. More analytical results pointed out that 73 percent of variability in behavior (taking the decision to stay or divest out) between foreign and local top ranked managers and CEOs' of FDIs, depended on the amount and timing of legal and fiscal procedures that investors needed to fulfil, timeframe for them to register their investments and declare their taxes status. As well the 12 In-depth interviews supported the econometric results driven from the 92 questionnaires and revealed a 'Wait and Hold' stance by most of the foreign investors, with respect to their intentions to expand investments in the near future.

The rationale behind why foreign investors should remain in Egypt during the transition was mainly conditional on three specific factors: first the provision of higher investors protection and property rights, in addition to rigorous and quicker settlement of investors disputes. Second the implementation of macroeconomic reforms to enable investors to conduct their day to day business transactions, eliminate capital control and restrictions on Foreign exchange and revenues transfer abroad. Third, granting investors a bundle of financial, public utilities and tax related incentives.

Chapter 5: Final Remarks on policy implications for MENA region and future research agenda

This final chapter summarizes the main results, policy implications, findings, in addition to expressing the theoretical and empirical contributions of this Doctoral Thesis. It also presents the limitations and future research agenda for many topics that emerged throughout the discussion of this thesis. This could include: i) Detecting the impact of governance and similarity between MENA countries regimes and their trading partners from (RoW) on trade flows intensities between MENA and those partners. ii)Investigating the neighbourhood effect between MENA countries and how it affects the Region's trade intensity, in the context of the on-going political tensions and conflicts the region was exposed to. iii) An in-depth analysis of product specific and regime wide RoO for MENA countries and their impact on the region's sector specific imports. IV) The analysis of intra-regional FDI flows of multinational firms between MENA countries, which will determine the future of trade intensity flows between countries.VI) Services sector in MENA countries and their impact on increasing the region's trade intensity.

Resumen

La motivación de la presente tesis Doctoral surge de la necesidad de analizar tres objetivos que tienen mucha importancia y son eminentes para mejorar la intensidad de comercio y el clima de inversión en la región y además, los objetivos llevan a cabo implicaciones políticas para el bienestar del comercio de la región de MENA : I) considerar el crecimiento de comercio intra-regional entre los países de MENA, dado que podamos controlar para la gobernación y régimen y barreras de comercio en la región. II) Ver a qué grado el Tratado Asociativo entre los países de Agadir y la Unión Europea (UE) podría fomentar el comercio inter-regional de los mismos países de MENA (Egipto, Jordania, Marruecos y Túnez) y entre los países de la UE. También relacionado al mismo segundo objetivo, detectar la variación de la estructura y componentes de los flujos finales e intermedios de exportaciones de países de Agadir, especialmente cuando introducimos la adopción de las Reglas de Origen Diagonal 'Pan Euro'. III) Analizar cómo afectaba la fragilidad de las instituciones al clima de inversión directa extranjera (IED) después de los incidentes de 2011 a través de una base de datos original y cualitativo sobre (IED) por Egipto.

El enfoque metodológico que aborda el primer objetivo se desarrolló al utilizar un modelo de gravedad capaz de explicar la intensidad de flujos comerciales de mercancías entre los países de la región MENA. El conjunto de datos cubrió un plazo de 25 años desde 1985 hasta 2010; y utilizó datos de panel desequilibrados para explicar episodios de incidentes políticos significativos y para reflejar las irregularidades de la región MENA. Los datos sobre el PIB de países de origen y destinación provienen de los Indicadores de Desarrollo del Banco Mundial (2010) y los datos sobre distancia, contigüidad, colonias e idioma se derivan de la Base de Datos TRADHIST del CEPII. A partir de dicha información, se elaboraron varios modelos gravitatorios con el objetivo de medir el efecto que distintas iniciativas subregionales de libre comercio acabaron teniendo en el comercio de mercancías manufacturadas dentro de la Región. Más importante aún, el poder explicativo del modelo fue aumentado al incorporar índices Polity IV y Trade Freeness convertidos en dummies.

En cuanto al primer objetivo relacionado con la estimación de los flujos comerciales intra-regionales de MENA, se contabilizó con la variable de Polity IV que se descompone en (Polity_demo[10], Polity_mixed[11]

[10]Poltiy_Demo: dummy para países democráticos con un umbral superior a 5 puntos en el puntaje del índice Polity IV
[11]PolityMixed: dummy para países con regímenes combinados mixtos tanto de democracias como de autocracias y su umbral en la política IV está entre [-5,5]

y Polity_autoc[12]) y otra variable dummy del Trade_Freeness. Ambos modelos darán cuenta de que la transformación de los regímenes y sistemas gobernantes de los países de MENA de set autocráticas a democráticas, conducirán a subir la intensidad de flujos comerciales entre dichos países. Al mismo tiempo no podremos confirmar que la subida de los flujos comerciales entre los países de la región MENA, ocurra cuando haya una semejanza de regímenes democráticas entre estos países. Finalmente, los coeficientes de variable de libre comercio, ha mostrado resultados significativos para todas las categorías de la variable y ha incrementado el comercio intra-regional de los países de MENA a través de todas las estimaciones (Duc y Lavallée y Siroën, 2008; Bhattacharya y Worlde, 2009; Lutmar, 2011; Bacchetta et al., 2012).

El segundo objetivo se refiere al Acuerdo Asociativo de Agadir firmado entre (Egipto, Jordania, Marruecos y Túnez) conocido como Agadir_4. El objetivo enfoca a mostrar el grado de fomento que provoca el Tratado de Agadir sobre los flujos comerciales sectoriales entre sus cuatro países y La UE, cuando introducimos las Pan-Euro Reglas de Origen. Otro motivo es comprobar si el impacto de Pan-Euro Reglas de Origen ha causado un cambio brutal en la estructura, y componentes de flujos comerciales entre Agadir_4 y la UE y ha re-orientado la intensidad de flujos comerciales en los sectores intermedios y comercio de componentes con un mayor valor añadido hacia los países de Agadir_4 , donde se procesan los productos y se re-exporta directamente a los países de UE (Augier and Gasoriek and LaiTong, 2007) .

Al abordar el segundo objetivo, aplicamos una metodología de enfoque doble, que empieza en primer lugar con la realización de un 'Análisis de Cluster Hierárquico' basado en Porter (2010) and Montalbano and Nenci (2010) y que identifica los sectores de flujos relevantes, que podrían ser tratados en el segundo paso metodológico con Pan-Euro Reglas de Origen (RoO) diagonales. Antes de todo, los flujos de los tres clusters derivados del análisis estarán introducida por Modelo de gravedad con estimaciones basadas por el Estimador 'Pseudo Poission Maximum Likelihood Estimator' (PPML). Al mismo tiempo la metodología muestra consistencia con las estimaciones previamente adaptadas (Anderson y Wincoop, 2004, y Silva y Tenreyo, 2006; Chaney, 2008; Helpman et al., 2008). Los datos del modelo de gravedad están extraídos del conjunto de datos CEPII Gravity 2010 y (TRADPROD), con la Clasificación Industrial Internacional (ISIC) ajustada para realizar la calibración entre los flujos de sectores de exportaciones finales e intermedios y la adopción de RoO diagonales. En segundo lugar, combinamos los dos: el modelo de gravedad bilateral para calcular los flujos sectoriales entre Agadir_4 e la UE y los variables que capturan el tratamiento con RoO diagonales y que estarían estimados a través de los métodos de 'Diferencias en Diferencias' (DID). Este enfoque se utiliza para modelar el impacto de las

[12]Polity_autoc: dummy para los países que se declaran tener regímenes autocráticos completos y su umbral en el índice es menor que -5

políticas comerciales sobre los flujos sectoriales y se valida por Estevadeordal y Suminen (2004) y Gretton y Gali (2005) y Augier et al. (2007) y Gasiorek (2008) para estimar los regímenes mundiales de RoO. En el contexto del acuerdo de Agadir, construimos dos grupos de tratamiento I y II compuestos de 50 y 30 países candidatos de la RoO diagonales respectivamente y, de forma equivalente, dos otros grupos de control I y II comparables en todos los aspectos excepto el tratamiento con RoO diagonal.

El último objetivo de la tesis consiste en analizar cómo el deterioro de las instituciones políticas, económicas y comerciales de los países de MENA después de las revueltas de 2011, han tenido repercusiones negativas en el clima de inversión de la región, tal y como prevén algunos autores (Onyeiwu, 2003, Méon y Sekkat, 2004, Chan y Gemayel, 2004, Kamaly, 2007). Para acometer este tercer objetivo se adopta un enfoque metodológico totalmente diferente, al utilizar técnicas de investigación cualitativa centradas en el análisis del clima de la Inversión Extranjera Directa (IED) en Egipto después de la transición de 2011.

Como punto de partida de este análisis original, en este capítulo de la tesis se recogen los principales resultados obtenidos tras la recopilación de una base de datos novedosa sobre las inversiones extranjeras directas realizadas en Egipto después de la turbulencia de 2011. Los datos fueron recogidos a través de cuestionarios que fueron dirigidos a 92 multinacionales extranjeras y egipcias de tamaño medio, todas ellas con presencia en Egipto. Los cuestionarios fueron diseñados para incluir los datos demográficos de los inversores directos extranjeros y los factores institucionales que afectan al clima de la IED en Egipto. Los cuestionarios se complementaron con 12 entrevistas en profundidad realizadas para obtener información sobre los desafíos institucionales que enfrentan los inversores en sectores específicos. Nuestra metodología cualitativa para averiguar el efecto de las variables institucionales sobre el estado de IED fue motivado por los siguientes autores (Ziacik, 2000, Bastos y Nasir, 2004; Tridico, 2006; Klaus y otros, 2009; Hotho y Pederson, 2012; Garridoet Al., 2013; Hanafy, 2015).

Todos los datos del cuestionario fueron codificados y preparados para el análisis econométrico. A través de un ‘Análisis de Componentes Principales’ (PCA), se pudo solventar los problemas de dimensionalidad y reducir el número de variables que se añadirán a la estimación. A través del PCA se obtuvieron tres grupos de componentes, que serían posteriormente analizados, mediante una regresión logística, con el objeto de determinar los factores que mejor definen el clima de la inversión en Egipto. Adicionalmente, se aporta un análisis complementario basado en los factores comunes identificados entre los 92 cuestionares y la información detallada de las 12 entrevistas en profundidad realizadas con personalidades y expertos, lo que ha permitido detectar los factores más importantes que influyen en el clima de inversión en Egipto a un nivel sectorial.

Descripción detallada de cada capítulo:

La tesis doctoral se estructura en 5 capítulos principales, incluyendo la introducción y conclusión en consecuencia:

Capítulo 1: Introducción

Este capítulo tiene por objeto ofrecer al lector una visión general de los factores que caracterizan a la región MENA, con la intención de identificar los factores que explican los flujos comerciales actuales y potenciales que mantienen los países de la región MENA entre sí, y con otras regiones relevantes del mundo. El capítulo pasa luego a presentar datos sobre: I) la intensidad de los flujos comerciales entre países de la región MENA. II) los episodios e incidencias de inestabilidades políticas y económicas que ha sufrido la región. III) la presencia de barreras no arancelarias y técnicas y procedimientos que llegan a disminuir los flujos comerciales entre países de MENA debido a los arreglamientos conflictivos entre los tratados distintos en la región. IV) Los flujos comerciales de complejidad y valor añadido alto en la región. V) una breve reseña sobre el clima de IED en los países de MENA. El resto de este capítulo da más enfoque sobre el modelo clásico de gravedad que sería el marco de referencia de casi todas las estimaciones econométricas en los otros capítulos.

Capítulo 2: ¿Aumentaría el comercio intra-regional entre los países MENA cuando sus países sean más democráticos y menos burocráticos?

En este capítulo se consideran una intensidad de los flujos comerciales entre los países de la región MENA, una vez que controlemos por las variables de los sistemas gobernantes en el país, cambio de régimen y finalmente categorías de la variable de (Trade Freeness) y sus impactos sobre instituciones comerciales en dicha región. El modelo de gravedad bilateral estimaría los flujos bilaterales de bienes manufacturados entre países de la región MENA. Además, el poder del modelo de gravedad incluyó variables capturando el nexo entre los sistemas gobernantes en los países de MENA e instituciones comerciales a través de añadir Polity IV y Trade Freeness ambos índices como variables en el modelo. Las dos variables están descompuestas entre tres categorías. Polity IV (Polity_demo y Polity_mixed y Polity_Autoc) mientras que Trade Freeness por (Trade_free y Trade_mfree, Trade_unfree). Además otra estimación de robustez estará introducida por los sub-grupos regionales entre la región MENA, que pueden por separado provocar la intensidad de comercio entre los países de MENA y son los siguientes: Países del Consejo de Cooperación del Golfo (CCG), La unión de Magreb árabe (UMA), El tratado Asociativo de Agadir (Agadir_4) y finalmente el Acuerdo de Libre Comercio Árabe (PAFTA).

Al Comprobar con todas las variables anteriores mediante el desarrollo de cuatro escenarios subyacentes y añadir las variables dummies correspondientes en cada estimación, se muestra que la transformación

de los sistemas de países de MENA de regímenes autocráticas a regímenes democráticas, resultará en la bajada de costes de intercambio entre los países y al mismo tiempo una subida de intensidad de flujos comerciales entre los países de la región. Al mismo tiempo no podríamos confirmar que la subida de los flujos comerciales entre dichos países de la región MENA, ocurra cuando haya una semejanza de regímenes democráticas entre los países de MENA. La significatividad de los resultados extraídos estaba en consistencia con la significatividad de las variables de Polity IV y Trade Freeeness destacadas en la literatura para otras regiones a través de Duc y Lavallée y Siroën (2008); Bhattacharya y Worlde (2009); Lutmar (2011); Bacchetta et al. (2012). Otros resultados fundamentales en el capítulo indican el control, por el nexo entre, los variables de Polity IV y Trade Freenees llevará a un incremento de 104% en el comercio entre países de la región MENA. Al mismo nivel la robustez de las variables sub-regionales en MENA como el PAFTA y Agadir_4 han contribuido a un aumento considerable por el comercio intra-regional de MENA, dado que los países en los dos sub-regiones son mixtos (Democráticas y autocráticas).

Capítulo 3: ¿Qué sucede con los flujos comerciales cuando las Reglas de Origen son más flexibles? Exportación de flujos sectoriales específicos entre Agadir_4 y la UE.

En este capítulo, vamos a mostrar el grado de fomento que provoca el tratado de Agadir sobre los flujos comerciales sectoriales entre sus cuatro países y La UE, cuando introducimos las Reglas de Origen Pan-Euro. El otro motivo es comprobar si el impacto de dichas Reglas de Origen ha causado un cambio brutal en la estructura y componentes de flujos comerciales entre Agadir_4 y la UE y que ha reorientado la intensidad de flujos comerciales en los sectores intermedios y comercio de componentes con un mayor valor añadido hacia los países de Agadir_4, donde se procesan los productos y se reexportan directamente a los países de U.E. Asimismo, es esencial considerar cómo la adopción de la RoO diagonal Pan_Euro entre Agadir_4 y UE y cómo atribuirá a reducir el porcentaje de umbral del valor añadido domestico de los sectores por la cuenta de aumentar el valor añadido regional que está atraído por productos y sectores de fuera de la zona preferencial que aplica las RoO diagonal. Este resultado es consistente con la motivación de la literatura que surgió de la parte de Augier and Gasoriek and Lai-Tong (2007). Los resultados de tratamiento han mostrado el cambio y re-orientación de la intensidad de los flujos al pasar por los países de Agadir como un eje donde muchos de las manufacturas de componentes y bienes intermedios se acumulan y son re-exportados de ahí al (RoW) en lugar de ir solamente a los países de UE.

Las dos fases del enfoque metodológico comenzaron por realizar el Análisis de Clúster para identificar los flujos relevantes de los sectores específicos entre Agadir_4 e UE. Después, los tres clusters de sectores que resultan del análisis fueron introducidos al modelo de gravedad estimado por el estimador de PPML. La segunda fase, los flujos sectoriales de exportaciones de flujos relevantes, estuvieron sujetos al tratamiento con Reglas de Origen (RoO) diagonal Pan-Euro adaptado por el método de 'Differencias en

Differencias'. (Anderson y Wincoop, 2004; Estevadeordal y Suminen, 2004; Gretton y Gali, 2005; Silva y Tenreyo, 2006; Augier et al., 2007; Chaney, 2008; Helpman y otros, 2008; Gasiorek, 2008). El análisis de Clúster resultó en tres grupos de Clúster compuestos de los flujos sectoriales entre Agadir_4 y la UE.: Clúster 1 dedicado a los sectores de los Petroquímicos, Clúster 2 consistía de bienes de consumo no duraderos. Finalmente, el grupo 3 para los componentes y piezas de recambio de las maquinarias.

Otros resultados afirmaron que el tratamiento con RoO diagonal contribuyó a mejorar las exportaciones finales e intermedias entre Agadir_4 y la UE en promedio por un factor de 2.7 y 1.3 respectivamente. También RoO diagonal contribuyeron a cambiar la estructura y composición comerciales de los flujos sectoriales de Agadir 4 de los países de la UE. El sistema de acumulación de RoO diagonal permitía a sus miembros traer insumos para las exportaciones de los países fuera de la zona colectiva que adoptan RoO a precios muy competitivos. Los resultados han mostrado que así sube el valor añadido de las exportaciones de Agadir_4 a los países de la UE, además, desarrolla el comercio de bienes intermedios por los sectores entre Agadir_4 e la UE como ejemplo, el crecimiento 48 veces de los productos de goma después de la adopción de las RoO diagonal.

Capítulo 4: ¿Determinará la calidad de las instituciones el clima de inversión en Egipto? Una encuesta cualitativa y entrevistas en profundidad sobre el caso de la IED en Egipto.

El presente capítulo trata de distinguir entre el comportamiento de los inversionistas extranjeros y egipcios después de las turbulencias de 2011 en Egipto (Onyeiwu, 2003; Méon y Sekkat, 2004; Chan y Gemayel, 2004; Kamaly, 2007). ¿Muchos inversionistas extranjeros salieron directamente después de las revueltas o mantuvieron sus inversiones?, dado la profunda fragilidad de las instituciones que se hizo evidente después de los incidentes de 2011 (PNUD, 2014; OCDE, 2015; GAFI, 2015; encuesta del FMI, 2015). En este capítulo de la tesis se recoge los principales resultados obtenidos tras la recopilación de una base de datos original sobre las inversiones extranjeras directas realizadas en Egipto después de la turbulencia de 2011. Los datos fueron recogidos a través de cuestionarios que fueron dirigidos a 92 multinacionales extranjeras e egipcias de tamaño medio, todas ellas con presencia en Egipto. Los cuestionarios se complementaron con 12 entrevistas en profundidad realizadas para obtener información sobre los desafíos institucionales que enfrentan los inversores en sectores específicos. El cuestionario fue diseñado en tres partes. La primera parte del cuestionario incorporó datos demográficos sobre las IED, mientras que la segunda y tercera partes introdujeron preguntas sobre la calidad de las instituciones políticas y económicas modelada luego por variables ordenados en una forma de matrices para estimar la calidad de las instituciones y cómo determinaron el clima de la IED en Egipto. Después de la preparación y codificación de los cuestionarios, se realizó un 'Análisis de Componentes Principales'(ACP) para reducir la dimensión de las variables utilizadas en la regresión Logística con variables categóricas y ordinales.

Los siguientes resultados confirmaron que un aumento de la desviación estándar en las categorías de variables que afectan a la protección de los derechos de los inversores e incentivos a los facilitadores de los negocios y la calidad de las instituciones macroeconómicas llevó a una variabilidad del 70 por ciento en el clima de inversión de Egipto con alta significatividad. Más resultados analíticos señalaron que el 73 por ciento de la variabilidad en el comportamiento (tomar la decisión de quedarse o desprenderse) entre los directores y ejecutivos (extranjeros y locales) de las IED, dependían de los procedimientos legales y fiscales que los inversores necesitaban cumplir en un corto plazo para que registren sus inversiones y declaren su estancia fiscal. Además, las 12 entrevistas en profundidad dirigidas a las IED respaldaron los resultados econométricos de los 92 cuestionarios y revelaron tomar una estancia "esperar y vigilar" por parte de la mayoría de los inversores extranjeros sobre sus intenciones de ampliar sus inversiones en Egipto a medio plazo.

La justificación de por qué los inversores extranjeros deben permanecer en Egipto durante la transición estaba principalmente condicionada por tres factores específicos: en primer lugar, la oferta de mayores derechos de protección de los inversores, además de una solución rigurosa y más rápida de las controversias entre inversores y el país donde invierten. En segundo lugar, las reformas macroeconómicas para controlar y permitir a los inversores que lleven a cabo sus transacciones comerciales diarias, como, eliminar el control de capital y las restricciones sobre las monedas extranjeras y la transferencia de ingresos de inversores al extranjero. En tercer lugar, otorgar a los inversores un paquete de servicios financieros, servicios públicos e incentivos fiscales.

Capítulo 5: Observaciones finales sobre las repercusiones de las políticas para la región MENA y la futura agenda de investigación

Este último capítulo resume los principales resultados e implicaciones políticas y las contribuciones teóricas e empíricas de la tesis doctoral. También el capítulo presenta las limitaciones y líneas de investigación y agenda investigadora de varios temas que han surgido al presentar el contenido de la tesis doctoral que incluirá: I) detectar el impacto de sistemas gobernantes y cómo pueden las semejanzas entre regímenes en los países de MENA causar una intensidad en los flujos comerciales entre dichos países y otros países en el resto del mundo (RoW). II) investigar el efecto de vecindad entre los países de MENA y cómo puede efectuar los flujos comerciales e intensidad de comercio entre los mismos países, especialmente dentro del contexto de tensiones políticas y continuidad de conflictos que la región está sufriendo. III) Un análisis profundo de las reglas de origen específico de los productos y RoO diagonales para los países de MENA y sus impactos sobre las importaciones sectoriales e inter-regionales. IV) Análisis empírico de los flujos comerciales entre compañías multinacionales en la región de MENA. VI) El sector de servicios en la región de MENA y las expectativas de intensidad de flujos comerciales entre dichos países debido al sector de servicios.

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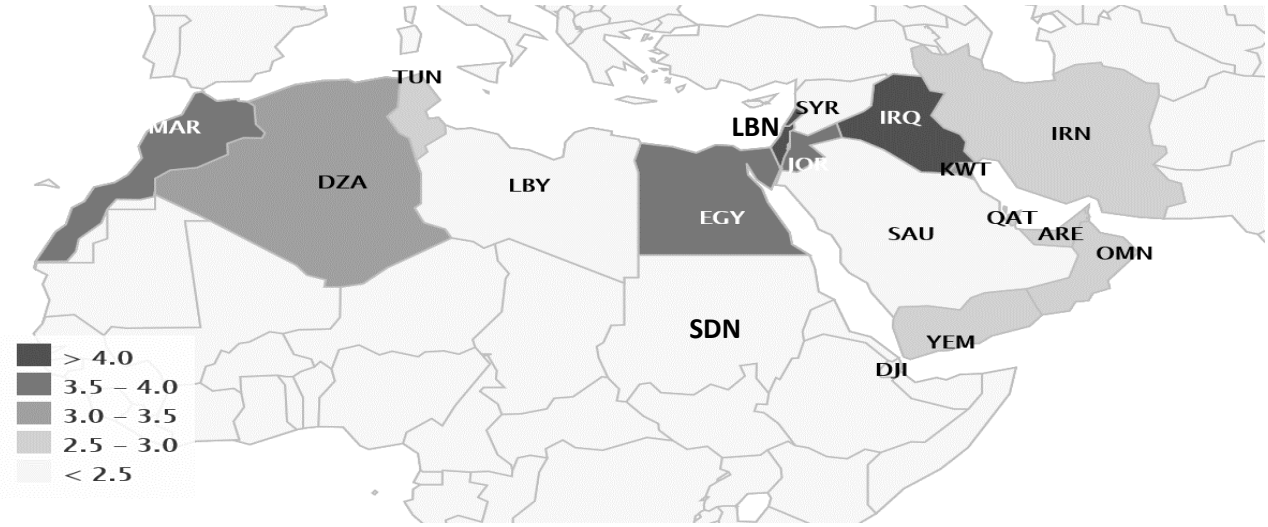
Chapter 1. Introduction

Middle East and North Africa's Regional Outlook and Challenge

"The MENA Region, with over 400 million people, exports roughly the same amount as Switzerland" (Bernard Hoekman, Intra-Regional Trade: Potential Catalyst for Growth in the Middle East, MEI Policy Paper, April 2016)



Democracy Index for Middle East and North from 1985 -2014

Source: Stat Planet World Bank - Open Data

1.1 Middle East and North Africa's Regional Outlook and Challenges

It is quite impressive how a Region formed of 21 countries[13] having a market potential of 425 million individuals, owning three fourths and 45 percent of the world's proven crude oil and gas reserves respectively and eventually it only contributed to 6.6 percent of global Merchandise trade during 2014. As well the common geographical proximity, language and cultural ties, should unleash the Region's potential to reach a higher level of inter-regional and intra regional trade flows (Wei, 1996). Although

[13] MENA region's 21 countries based on World Bank latest reports and Algeria, Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Qatar, Saudi Arabia, U.A.E, Syria, Tunisia, Palestine, Israel, Yemen. Djibouti, Malta, Iran.

MENA is endowed with natural resources; which represented up to 77 percent of its total exports, there is an apparent contrast and diversity of resources across MENA countries and '**Trade Complementarity'**[14] opportunities between its countries. On one hand '**Gulf Cooperation Council Countries' (GCC)**[15] mainly rely on oil exports and manufactures (Boughanmi et al., 2016), whereas, countries with less natural resources such as **'Agadir Association Agreement'**[16]have their trade flows backbone dependent upon non-oil manufactures and component part industries (Sullivan et al., 2011). Finally, the role played by the '**Euro-Mediterranean Partnership**[17]', should support in increasing MENA's regional trade intensity and harness the '**Lock in Reforms**'[18] within the Arab Mediterranean region.

There have been many reasons justified by the literature and shown in this dissertation, addressing why the region's actual trade intensity and global integration efforts lagged that of other regions: First reason would be the evidence of **governance deficit and fragility** of economic and political institutions across most of its countries. Second, **presence of non-tariff, technical and procedural barriers to trade** on a regional level; which caused discrepancies between trade flows of its countries. Third, the existence of a multitude of regional agreements known by '**The Veritable Spaghetti bowl of Trade Agreements**' within MENA, as shown in Figure 1.1. This veritable Spaghetti bowl of agreements led to higher levels of conflict and costs in applying trade regulations between MENA countries. Fourth the **reduced manufactured and value-added content of its final and intermediate trade flows**, which prevented the region from boosting the value-added content of its trade flows. Finally, the **region's marginalized share of investments**, which plunged further by 51 percent to reach USD 45 billion during 2013; especially after the famous Arab Spring turmoil of 2011 (Wippel, 2004; Direction of Trade database, 2006; Seshan and Casero, 2010; Walkenhorst and Shui, 2010; Behar and Freud, 2011; Rouis and Tabor, 2013; Hoekman, 2016)

[14] Trade Complementarity: It shows prospects of exchange between structures of country's imports and exports and how they can match.

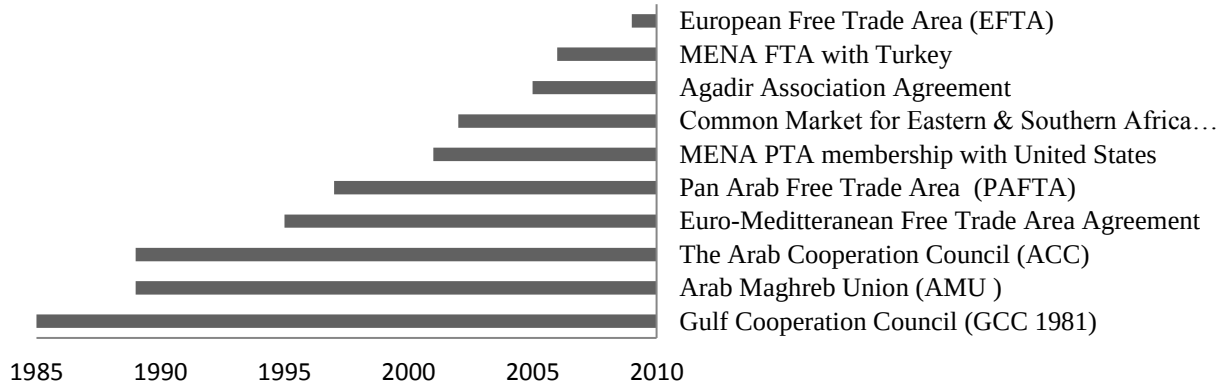
[15] Gulf Cooperation Council countries include 6 Gulf countries Oman, Bahrain, Qatar, U.A.E, Saudi Arabia, and Kuwait

[16] Agadir Agreement Countries: Jordan, Tunisia, Morocco and Egypt

[17] Euro Mediterranean partnership: a partnership between E.U. countries and southern Mediterranean countries with the objective of removing barriers to trade and increasing investment flows between both partners.

[18] Lock in Reforms. The hidden potential that region has through the various opportunities from regional partnerships, resources, human capital, strategic location, and cultural aspects.

Figure 1.1Time line for full Development of Sub-Regional Trade Initiatives in MENA Region [1985-2010]



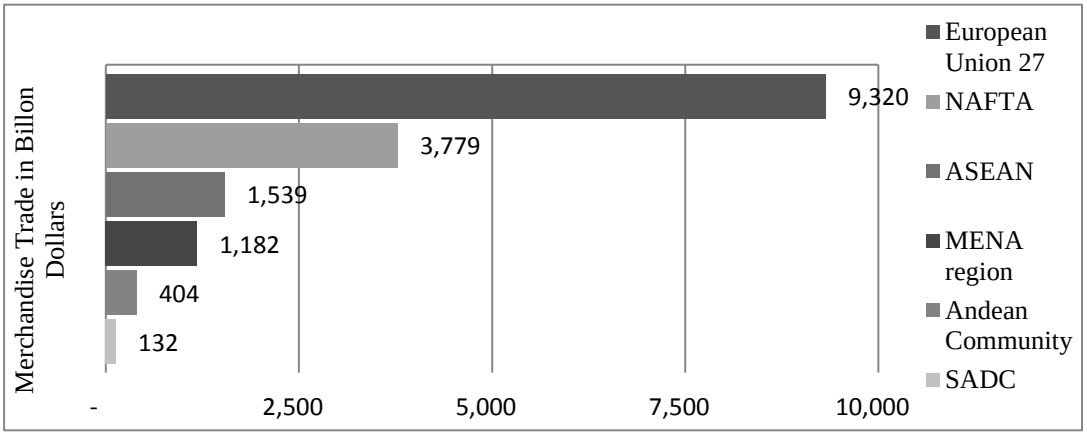
Source: Own's elaboration extracted from CEPII dataset to estimate intra-trade flows for MENA countries

1.2 Descriptive analysis about MENA's intra-Regional and Intra-Regional Trade Flows:

1.2.1 Facts about MENA's Regional Trade Flows Intensity

MENA region's trade accounted for 7 percent of the world's merchandise trade based on Hoekman (2013) and WTO Statistical reports (2014). According to WTO Statistical Database for [1999-2009] and as explained in Figure 1.2, the Region was ranked the fourth in terms of its trade compared to the rest of the world (RoW) after E.U., NAFTA, and ASEAN during 2009 and its total world exports did not exceed 5 percent. MENA countries, especially oil producing ones; as elaborated by Abed and Davoodi (2003) witnessed an economic boom benefiting substantially from the sharp increase in oil prices during the 70's.

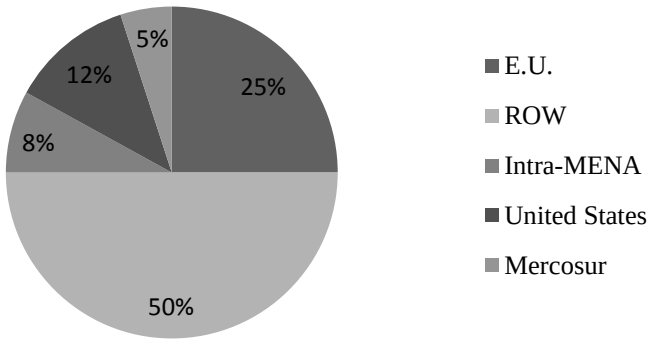
Figure 1.2 MENA Region's Merchandise Trade Benchmarked to other Regional Blocs during 2009



Source: World Trade Organization Statistical database 1999- 2009 & raw data from CEPII gravity data-set.

Moreover, MENA countries intra-regional exports and imports accounted for 10 percent and 16 percent of the Region's total exports and imports respectively during 2011 and its Intra-regional trade reached around 3.5 percent of the region's GDP during 2009. Although around 62 percent of its exports represented fuels and its derivatives in contrast to 54 percent of its imports concentrated in manufactured merchandise, yet the motivation for assessing MENA's intra-regional and inter-regional trade flows in the context of this dissertation will be built only on merchandise flows and no oil flows will be analysed. The Region's exports of manufactures reached roughly 22 percent of its exports during 2009 and finally MENA's share of trade in services accounted for 9 percent (Hätinger, 2009; World Bank, 2011; Aktar and Bolle and Nelson, 2013). Its main trading partners during 2009 were broken down in ascending order of trade values as demonstrated in Figure 1.3, such that the majority stake of the region's trading goes to RoW within which falls Asian trading partners (Japan, South Korea, China, India), rest of ASEAN [19]members, African countries of COMESA[20], SADC[21], and others in Latin America. In second position came the European Union at 25 percent, followed by Unites States at 12 percent and finally intra-MENA at 8 percent.

Figure 1.3: MENA Region's share of Trade (X+I) with other partners



Source: Raw data from the CEPII gravity dataset 2014

[19] ASEAN Members: Association of Southeast Asian Nations

[20] COMESA: Common Market for Eastern and Southern Africa

[21] SADC: Southern African Development Community

1.2.2 Episodes of Political and Economic Instabilities in MENA

Over the last thirty years MENA countries suffered from several wars, political fragmentation, authoritarian regimes in most of its countries and the presence of pervasive and consistent conflicts in the region. This was verified by several authors among which are Nabli and Jaurégui and Aysan (2008), as they explained the impact of instability on the slow-down of MENA's democratic institutions and its effect on undermining the Region's accountability for longer than expected. Unfortunately, deficiency of democratic institutions became contagious not only to political but also economic institutions causing contraction in the growth of the Region's countries, higher inflation, large fiscal and current account deficits and reduced trade intensity (ACHY, 2000; Abed and Davoodi et al., 2003; Khamis ,2014).

Although many of the MENA region countries (e.g., Lebanon, Morocco, Egypt and GCC countries) since the 90's took the initiative on their shoulders to start a series of economic structural reform and privatization programs under the guidance and monitoring of IMF and World Bank, yet most of these programs did not realize their targets. During this time, MENA region's privatization receipts amounted only to USD 8.2 billion compared to USD 178 and US USD 65 billion privatization gains recorded by Latin America and Eastern Europe economies respectively during their reforms. Finally, in vain, up till the moment MENA countries are facing daunting challenges with respect to their political, economic and social institutions evident from the lagging governance indicators, heavy bureaucratic and arbitrary regulations, low productivity levels, instability of exchange rate policies and suppressed trade flows.

Most recent Upheavals and Incidents of Arab Countries in Transition (ACT) during 2011

The series of violent incidences struck the region like a domino effect with the resultant of governments overthrown in Egypt, Tunisia, Libya and the Republic of Yemen after 2011. Civil wars broke out in Libya and Syria and major turbulences extended to Bahrain, Turkey and Lebanon (Ferragina, 2014). Four years later, Arab countries in revolts had shown different responses to deal with the political and economic transitions and to reach the speedy recovery towards their paths of growth and development. Countries similar to Morocco and Jordan maintained their status quo and they managed to monitor well the series of institutional and political reforms they introduced since 2011 and learnt their lessons from other neighbouring countries. After the onset of the Arab revolutions, policy makers, politicians and economists' expectations on Arab Countries in Transition (ACTs) future were very floundering and sceptical. They were divided among themselves into two schools: the first school acknowledged the fact that it's still too early to judge whether ACTs waves of revolts succeeded in changing their countries political and economic institutions and laid the foundation for peaceful democratic transitions to

stimulate trade and FDI flows in the region[22]. The second group of experts remain to be more conservative in drawing conclusions and giving excessive optimism on the future of ACTs and they claim that their expectations from Arab revolts were set too high. (Behr and Sasnal, 2012; Kausch, 2013; Khader, 2013). In the context of the thesis, Arab countries in transition will be only referred to during the analysis on the fourth chapter to determine impact of institutions on FDI climate in Egypt during and after the 2011 turmoil.

1.2.3 Presence of non-tariff, Technical and Procedural Barriers to Trade

The wide discrepancy in average tariff rates across the MENA countries rendered countries paying custom duties, at higher vulnerability to suffer from trade distortions; i.e. starting from 2007 most of the GCC countries did not report import tariffs exceeding 5 percent in contrary to others in Arab Maghreb Union (AMU)[23] with import duties during the same year amounting up to 30 percent (IMF Trade Data base, 2007; Hätinger, 2009; Shui and Walkenhorst, 2010). As well some sub-initiatives such as the '**Agadir Agreement Countries**'[24] attained relatively considerable international **'Trade Freedom'** [25] scores arranged in ascending as follows: Jordan scored 7.9, Tunisia at 7.09, Morocco at 6.96, and finally Egypt at 6.23, during 2011[26] (Fraser institute report, 2013). This is strictly due to the fact that; Agadir agreement countries were committed to apply their bilateral PTA protocols signed with E.U and in consequence they started to reduce their weighted average '**Most Favored Tariff rate**' (MFN)[27] .

[22] Critics and authors in the book are very argumentative about how long should the Arab countries stay in transition, some of them argue it should be three to four years, others claim it could involve a change of a whole generation with a time span of 21 years.

[23] Arab Maghreb Union countries: they are Morocco, Algeria, Tunisia, Libya and Mauritania.

[24] Agadir Free Trade Agreement: Free trade agreement between four Arab south Mediterranean countries (Morocco, Tunisia, Jordan and Egypt). It is an initiative of the Union for Mediterranean incepted by the European Union and an example of South South integration policy.

[25] Freedom to Trade: it represents a composite measure of the absence of tariff and non-tariff barriers, affecting the imports and exports of goods and services $(((\text{Tariff}_{max} - \text{Tariff}_{i})/ (\text{Tariff}_{max} - \text{Tariff}_{min}))*100 - \text{NTB}_{i}$ (Economic Freedom, 2017)

[26] Fraser Institute: includes 4 Freedom to trade internationally adjusted score: a composite trade index containing the following indicators: international trade tax revenues as a % of trade/mean tariff rate/standard deviation of tariff rates /regulatory trade barriers/non-tariff trade barriers/compliance cost of importing and exporting/ black market exchange rate and international capital market controls.

[27] MFN Most Favored Nation tariff: represents a Non-discriminatory trade policy commitment offered by one country to another on a reciprocal basis and quota-restrictions on imports between each other, which they apply on the similar imports from any other country." (Wippel, 2005)

Accordingly, the MFN tariff across those countries began to converge to the world averages; falling from 23.4 percent during 1995 to around 13.2 percent on average during 2009. Although Agadir 4 countries efforts to control for trade restrictive barriers have been noticeable through their minimized tariff and MFN rates, application of '**Pan-Euro Rules of Origin'**[28] to facilitate trade with the E.U. yet they still suffer from major nontariff barriers, sanitary and phytosanitary Standards (SPS) to trade[29], property right abuses. In addition, both parties together are currently working towards harmonizing SPS's[30], especially for certain agricultural and food products (Eurostat SPS protocol, 2012).

1.2.4 Veritable Spaghetti Bowl of Trade Agreements in the MENA Region

In spite of the region's involvement in 8 intra-regional and inter-regional agreements; described by the '**Veritable Spaghetti Bowl of intertwined and overlapping agreements**'[31]; yet the region did not achieve the anticipated intensity of trade flows and gains due to the presence of conflicting regulatory regimes between its countries. The overlapping regional agreements in the MENA, added complexity in applying many trade regulations, increased the artificial non-tariff barriers over its various categories of antidumping provisions, quantitative restrictions and clashing Rules of Origin (Hätinger 2009). Some of the most significant sub-initiatives in Region and with other regions: '**Agadir Association Agreement**' (Agadir_4), '**Arab Maghreb Union**[32]' (AMU), '**Gulf Cooperation Council**'[33] (GCC)**,**

[28] Pan-Euro Rules of Origin: diagonal Rules of origin on products and sectors applied between E.U. and South Mediterranean countries to facilitate trade and rupture of the horizontal structure of Hub Spoke trade between E.U. countries and South Mediterranean countries

[29] Other technical barriers to trade: such as import quotas, voluntary export restraints, restrictive state trading intervention, export subsidies, countervailing duties, Rules of origin, technical barriers to trade and domestic content requirements (Beghin, 2006)

[30] Sanitary and Phytosanitary Standards (SPS): Bilateral trade agreements between E.U and south Mediterranean countries are import and export hygiene restrictions on some agricultural, food and poultry products. Reference protocol of European Commission

[31] "Veritable spaghetti bowl of [31]intertwined relationships and overlapping associations"; where every MENA party is a partner to at least one regional economic agreement and many countries are members of five or more of such agreements, causing conflict in their RoO and fragments the benefits resulting from region's intra-regional trade (Walkenhorst and Shui, 2010).

[32] Maghreb Union: The Arab Maghreb Union: Sub regional bloc within MENA region, consisting of the following countries : Libya, Morocco, Algeria , Tunisia & Sudan (Walkenhorst and Shui, 2010).

[33] Gulf Cooperation Council GCC: Gulf Cooperation Countries (GCC) are: Bahrain, Kuwait, Qatar, Oman, Saudi Arabia and United Arab Emirates (Walkenhorst and Shui 2010).

'**Euro-Med Association Agreements**'[34] , 'free trade agreements with the United States'[35], '**Greater Arab Free Trade Area**' [36] (GAFTA) re-adapted into the '**Pan Arab Free Trade Area**' (PAFTA)[37i] (e.g., Abed and Davoodi, 2003; ACHY 2006; Dadush and Falcao 2009; Rouis and Tabor 2013). Many empirical studies conducted by means of the trade gravity model and motivated by Al Atrash and Yousef (2000) , So derling (2005) and Miniesy and Nugent (2005), asserted that MENA's intra-regional trade is doing much less than what is expected, On the other hand, Portugal and Perez (2012) confirmed that estimating separately the trade intensities for some of MENA's sub-regional initiatives such as PAFTA and Agadir, revealed a positive and significant impact on their member countries trade flows at between [25-28] percent, which exceeded the impact of a standard preferential trade area.

1.2.5 Trade in manufactured and value-added content for the Region's countries

The intra-regional trade flow between MENA's countries is characterized by having low bilateral '**Trade Complementarity Indices ITC**'[38] as indicated by Péridy (2004), which did not exceed by any means 0.27, Comparatively to ITC values exceeding 0.5 and 0.35 respectively for other regional blocs such as EU and Mercosur (Yeats,1998). Agadir agreement countries is considered one of the region's

[34] Euromed association agreements: They represent the reciprocal bilateral association agreements between some of south Mediterranean Arab countries and E.U. starting chronologically by Morocco, Jordan, Egypt, Algeria, and Lebanon.

[35] Free Trade Agreements with the United States: Some MENA countries entering free trade agreements with (e.g., Jordan, Morocco, Bahrain, Oman and QIZ between Egypt and US and Israel) ().

[36] Greater Arab Free Trade Agreement (GAFTA): including 20 of the MENA countries except for Algeria. It also included Sudan (Walkenhorst and Shui,2010).

[37] Pan Arab Free Trade Area: PAFTA known as well as the GAFTA and signed during 1997; including the membership of over 18 Arab countries and it accounts for 80 percent MENA's total trade (Rouis and Tabor 2013)

[38] This type of index is frequently used in the empirical trade literature as for instance of Otsubo and Umermura (2003).

$$ITC = 1 - \frac{\sum_k \left| \frac{M_j^k}{Mj} - \frac{\mathrm{X_i^k}}{\mathrm{Xi}} \right|}{2}$$

ITC: Index of Trade complementary: with 0<ITC<1 , and the i being the exporting country, j the importing country, and k represents categories of goods. This index equals to one when the imports needs of country j match perfectly with the export supply of country i , the more this index tends to 1, the higher is relation between i's country exports and j's country imports. Conversely, it takes a zero-value when the sector specific composition of country i's exports has no overlap with the import composition of country j". (Pérdiy,2004). Relatively higher Trade complementarity indices are recorded for advanced regional trade agreements such as European Union or NAFTA at 0.5 (shui & Walkenhorst ,2010)

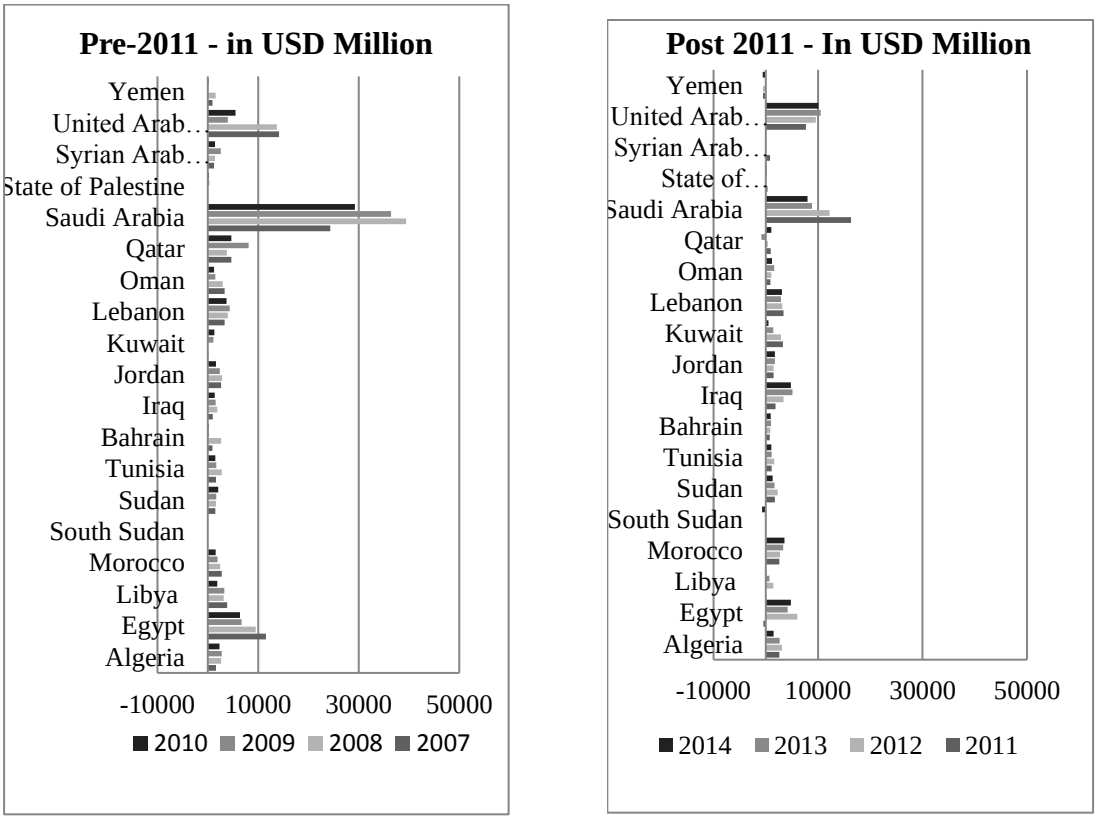
sub-initiatives that contributed the highest trade in value added; as it originated under the umbrella of Euro-Mediterranean Association Agreements between the European Union and South Mediterranean countries. In addition, several studies led by the Agadir Technical Unit report (ATU, 2010), demonstrated statistically and through field survey analysis[39] that the application of the Pan-Euro Diagonal Rules of Origin (RoO) raised the threshold of regional value-added components to be imported from outside the agreement. This in turn gave more permissiveness for its countries to enrich the value-added content of their final and intermediate flows. This led to the emergence of trade flows in new final and intermediate sectors, in addition to the change in the composition and spatial structure of the Region's trade flows through Agadir, which will certainly act on providing new opportunities for investments to the region. (Augier and Gasoriek and Lai Tong, 2007; ATU report, 2009 & Eurostat, 2014).

1.2.6 FDI Outlook and Investment Climate for MENA countries in Transition

One of the inseparable elements of MENA's trade intensity are the Region's investments flows and how much they were hardly hit during the 2011 transitions. Figure 1.4 and 1.5 gave a comparative analysis on FDI inflows of the Arab region and ACT countries before and after the 2011 revolts. It is seen that since 2008 FDI receipts to the region took a negative dip down; declining by 34 percent from USD 66.8 billion during 2010 to USD 43.9 billion during 2014. This was accompanied by diminishing Arab countries' share of global FDI to reach 3.2 percent during the same year. Many Investors in ACT's decided during 2011 to withdraw their investments with highest divestments recorded in Egypt at USD 483 million, Yemen at USD 518 million and Qatar at USD 840 million and this occurred for both public and private investments during 2011 (UNCTAD, 2012; Khandelwal and Roitman, 2013; Ernest and Young, 2015). Emerging Market Attractiveness Survey classified investors who reacted after the Arab Spring incidents into three groups. First group multinationals on top of which were Nestle, Unilever, Eriksson, BMW, shell and American Express and Halliburton just shut down and left after the incidents. The second group of investors as Coca Cola started to downsize, minimize their activities and shifted their production towards the assembly activities rather than complete production process. Finally, the third type of investors ran their operations through regional representative offices in Cairo or Dubai, such as Cargill and Caixa Bank

[39] Agadir Technical Unit report, they perform in-depth surveys on a selected sample of small and medium enterprises in Agadir agreement countries to assess their capacities in promoting intra-regional trade between Agadir countries and their trade flow with E.U countries on the basis of complying with the diagonal RoO and the objective is to shed light on a number of potential sectors where RoO cumualtion could be easily applied. (ATU 2009)

Figure 1.4 Ante 2011 FDI Inflows for MENA countries in$ USD million



Source: UNCTAD Annex tables for FDI Inflow by regions 2015 report

1.3 Econometric Analysis: Theoretical Foundation for the Trade Gravity Model

The main quantitative and empirical analysis used to measure MENA's intra- regional trade flows and sector specific inter-regional trade flows for its countries in the context of this Doctoral Thesis will be based on the '**Bilateral Trade Gravity Model'**.The simplest form of the gravity equation is derived from Newton's universal gravitation law (1687) with its main notion that the attraction between two bodies is proportional to the product of the their masses and inversely proportional to the squared distance separating both bodies. The analogy of the gravitational law was transmitted into the theoretical depth of international trade by Tinbergen (1962). Thus, the intensity of trade flows between country pairs increases with the size of their economies, and decreases with bilateral trade costs between them; to act as the proxy of geographical distance translated into a very basic framework for the gravity equation:

$$T_{ij} = G \frac{Y_i Y_j}{dist_{ij}^{\propto_3}} \quad \text{Eq. (1.1)}$$

Where Trade between country T_{ij}: represents bilateral trade flows between country i to country j, which will depend on the product of Yeconomic capacity or GDP of country i and GDP of country j adjusted for the bilateral distance between both ij.

By taking a lineal transformation of the multiplicative expression of the gravity, then the transformation of the original multiplicative expression into the OLS estimation will be as follows:

$$\text{Ln}(T_{ij})=\text{Ln}(G)+\propto_1 \text{Ln}(Y_i) + \propto_2 \text{Ln}(Y_j) - \propto_3 \text{Ln}(dist_{ij})+\propto_4 Contiguity_{ij}+\propto_5 Lang_{ij}+\propto_6 Colony_{ij}+\varepsilon_{ij,t}$$

eq.(1.2)

The Augmented gravity variables here are: $Contiguity_{ij}$, which captures the presence of common borders between trading partners i and j, meanwhile, $Lang_{ij}$ and $Colony_{ij}$ both account for existence of a common official language and colonial ties between trading partners respectively. In line with the considerable realm of empirical literature, contributing to the enrichment of the theoretical framework of the gravity variables along with Anderson and Wincoop (2003) adding the concept of '**Multilateral Resistance'**[40] to approximate for trade cost effects and the elasticity. All augmented variables were included to approximate for cultural, historical, linguistic and political aspects, currency unions and even the effect of membership into WTO (Rose, 2003; Frankel, Stein and Wei, 2005; Frankel, 2007; Baier and Bergstrand ,2007; Mitchell, 2007; Head and Mayer, 2012).

Additional estimators are used to correctly account for bilateral trade flows, especially for sector specific flows and to solve for many gravity challenges (Larch et al., 2012). In the context of using the gravity model to measure MENA's intra-regional and Agadir_4 countries to E.U. Inter-regional trade flows, we will be facing the following challenges arising with estimations of the gravity model and we will be resolving for them based on the following solutions proposed by the literature. The '**Zero Trade Flows'** is the first challenge and is treated for in several manners as referenced by Eaton and Tamura (1995) and Martin and Pham (2008), Silva and Tenreyro (2006) and Egger et al. (2011). The second challenge will be '**Heteroscedasticity**'[41] which as well was fixed through the methodologies used by

[40] Multilateral Resistance: Apart from the mutual attraction between the economic masses of two trading partners, there are additional forces and trade costs that make their trade more resistant (Anderson, 1979; Anderson and Vancoop, 2003)

[41] Heteroscedasticity: It po ints out that the estimates and effects of trade costs and policies that are inconsistent, when the gravity model is estimated in log-linear form of OLS.

Anderson and Van Wincoop (2003) and Santos Silva and Tenreyro (2006). Third will be the '**Endogeneity**'[42] typical to occur when trade flows are correlated to trade policies and which has been tackled by Trefler (1993) and Baier and Bergstrand (2007), however, it is really a challenging task to solve for endogeneity problems related to trade flows and trade policies. Finally, the gravity with '**Disaggregated Data**', which is grounded on Anderson and Van Wincoop (2004) and Larch and Yoto (2016b) and it relies on obtaining sectoral flows to measure the impact of trade policy on those flows. In this case, this type of data will require treatment for multilateral resistance and unobserved heterogeneities of origin and destination countries and time which will be treated through '**Fixed Effects**[43]'.

Along with all the theoretical foundation used as the basis for all our estimations, a set of augmented variables will be used for our specific purpose of assessing intensity of intra-regional trade flows between MENA countries. These variables will be Polity IV and Trade Freeness indices meant to account for governance and freeness of trade regimes for the Region and to capture the existence of institutionalized constraints on executives in exercising public trade policies and effecting trade regimes. This methodology was based on a modelling technique used in the literature analysing the '**Gravity of Institutions**'[44] for other regions and elaborated by Duc and Lavallée and Siroën (2008) and Bhattacharya and Wolde (2009) and Lutmar (2011); Bacchetta et al. (2012). Another scope of theoretical foundation proposed, which depends on combining between Gravity models and impact policy evaluation to measure sector specific disaggregate flows for MENA's inter-regional exports with E.U. In this case, the bilateral gravity model included variables to measure treatment through an approach known as; '**The Double Differences Approach Estimation Panels' (DID)**. This approach is used for modelling the impact of trade policies on sector specific flows and left its imprint in previous analysis motivated by Estevadeordal and Suominen (2004) and Gretton and Gali (2005) and Augier et al. (2007) and Gasiorek (2008) on World Wide RoO regimes.

[42] Endogeneity: This happens when the trade policy is possibly correlated to unobservable cross-sectional trade costs and it involves in this case reverse causality.

[43] Fixed effects: are exporter and importer fixed effects model to provide consistent estimates for any gravity model introduced in the Ricardian model by Eaton and Kortum (2002) and the heterogeneous firms model of Chaney (2008)

[44] Gravity of Institutions: it is the scope and brand of literature combining between both gravity model estimations and political variables and indices accounting for governance and quality of regimes. This scope of literature is motivated by many in the literature review, on top of which are Duc and Lavallée and Siroën (2008)

1.4 Qualitative Data Analysis: Based on Field Questionnaire:

This part of the qualitative methodology is built upon designing a questionnaire with a conceptual framework that analyses the impact of institutions on FDI climate in Egypt during the 2011 transition. We could identify the dependent and independent variables through the research question. Then we developed a conceptual framework based on literature review relating FDI's climate to factors and variables determining FDI climate. Then the stage of designing questions started and we designed most questions in the form of '**Close-ended**[45]' and '**Open-ended**'[46] questions and Likert scale matrices questions, usually graded in a scale of 5 categories of preferences. The third stage moved to the data being coded and prepared for econometric analysis to draw on common patterns from the collected data and finally present the results justified through illustrative explanations and individual responses. This methodology came in consistency with the following realm of literature (Ziacik, 2000; Bastos and Nasir, 2004; Tridico, 2006; Klaus et al, 2009; Hotho and Pederson, 2012; Garridoet al., 2013; Hanafy, 2015).

1.5 Thesis Reasoning Structure

In summary, we have shown in this chapter that, although the MENA has many geographical features, substantial market potential, natural resources and connectiveness through regional trade agreements, yet it has not yet managed to increase intra-regional or inter-regional trade flows as indicated by previous theoretical and empirical assessments. One of the most efficient empirical instruments to estimate intra-regional and inter-regional trade flows for the Region would be through the gravity equation, due to its multifaceted functions and as well it allows augmenting of other variables that are essential to assess the specificities of the MENA Region.

This Doctoral thesis will present three separate chapters suggesting to the reader different aspects of MENA's intra regional trade intensity addressed in chapter 2. As well chapter 3 assesses for the MENA's inter-regional trade intensity through estimating export flows between Agadir agreement countries and E.U. countries in the context of capturing the adoption of Pan-Euro RoO. Finally, chapter 4 presents a case study about the impact of institutions on FDI climate in Egypt during the transition of 2011. The three chapters share common concerns regarding fragility of the region's governance,

[45] Close-ended: question that provide options to the respondents and require them to choose one or more items in the list

[46] Open Ended: questions allowing the respondents to express their opinion freely and are not restricted by the option choices only

sequence of political disruptions and regime changes all increased the difficulty to trade and the emergence of trade barriers either between MENA's countries or on its inter-regional trade with the E.U. The fragility of institutions in MENA was not only reflected on the trade performance, but as well it affected the Region's investment climate over the last 30 years. This is where, we implicate that looking to control for political stability, increase of governance, and eliminating trade barriers will be the '**Top Bottom Integration Approach'**[47] needed to guarantee the harmony between the political, economic and trade institutions across MENA's countries. As well Identifying successful sub-regional trade initiatives, as Agadir Agreement that are believed not only to contribute to MENA's trade flows, but more importantly focus on upgrading the region's trade flows to assimilate highly processed and manufactured value-added trade flows and upgrade the Region's spatial trade structure and composition to a more sophisticated level. This integration approach is known to be the ' **Bottom Up Integration Approach**'[48] and was advocated by Hoekman (2016). Finally considering that trade and investment flows are sides of the same coin for the Region's best integration efforts, with the aim to have investor friendly regulations that help in protecting investors rights, giving them fiscal, financial and public incentives and re-assuring them to the stability of MENA's countries institutions and economies.

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[47] 'Top- Down' approach of integration: aiming to create homogeneity and conformity across institutions of regional blocs, so as to aiming to multilateralize PTAs (Baldwin and Patrick 2009)

[48] ' Bottom Up' approach of integration: integration approach relying on multinationals and companies in developing their supply chains to be based on benefits of PT As' provisions and the completion among PTA's in their initial trial- and -error quest for finding best solution to trade and investment technicality problems (Baldwin and Patrick 2009)

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CHAPTER 2: Would Intra-Regional Trade of MENA Countries Increase, When they are More Democratic and Less Bureaucratic?

Chapter 2: Would Intra-Regional Trade between MENA Countries Increase, When they are More Democratic and Less Bureaucratic?

Gravity Model controlling for Aspects of Governance and Trade Freeness in the MENA Region

2.1 Introduction

2.1.1 Integration Outlook of MENA Region compared to other Regional Blocs

Over the last thirty years most of the MENA countries suffered from repeated episodes of wars, political fragmentation, authoritarian regimes and above all the presence of pervasive and persistent civil conflicts in many of its countries. This is one of the reasons why MENA's actual share of intra-regional trade flow does not account to more 8 percent of the region's total flows compared to its share with Rest of the World (RoW) and the European Union (E.U.), which both recorded an average of 50 percent and 25 percent respectively over the last 5 years (Ekanayake and Embry, 2009; Rouis and Tabor, 2013).The notion of political disruption and how it led to the appearance of dysfunctional institutions in MENA and above all how this affected the Region's trade intensity has been challenged by the mainstream literature motivated by Nabli and Jaurégui and Aysan (2008).

The literature on this topic moved in different directions and it attempted to explain the link between how political institutions impacted trade governance and policies (ACHY, 2000; Abed and Davoodi, 2003; Khamis, 2014). It focused mainly on good governance, which will lead to greater effectiveness and vigour across all institutions. Empirical evidence suggested that trade flows are significantly and positively influenced by democratic regimes and this is exhibited in the design and implementation of their trade policies (Bliss and Russet, 2005; Kubota and Milner,2005; Lundström,2005). However, up till now there is no general theoretical consensus on whether bilateral trade flows increase, when two trading partners are more democratic or not (Mayer, 1984; Rogowski ,1989; Duc and Lavallée and Siroën, 2008). As for the relation between democratic institutions and how it affects intra-regional trade intensity in MENA, it is already a debatable topic. Accordingly, one of the aims of this chapter is to reveal whether the transformation of MENA countries from autocratic regimes to democratic ones, in light of the Region's geopolitical nature and complexities, will lead to greater effectiveness and vigour in governing institutions and above all trade institutions (Duc and Lavallée and Siroën, 2008). The state of governance is not the only factor influencing MENA's Intra-regional trade, however, it is important to consider various aspects of 'Trade Freeness' to account for the restrictiveness of

tariffs and behind the border technical barriers imposed by custom points. Then 'Trade Freeness Index' accounts for trade restrictiveness measures to control for any distortions, besides trade facilitation measures that are supposed to reduce trade compliance and rent seeking costs (Djankov et al., 2006; Bhattacharya and Wolde, 2010)

There have been a considerable scope of the literature developed by Al Atrash and Yousef (2000); So-derling (2005); Miniesy and Nugent (2005); Cieslik and Hagemejer (2009); Bhattacharya and Wolde (2010) and Lutmar (2011) estimating empirically through trade gravity equations and computable general equilibrium models, the significance of intra-regional initiatives in MENA and their contribution to the intensity of the Region's flows. Some of the most significant intra-regional initiatives between MENA countries emphasized by the literature included: '**Agadir Association Agreement'**(Agadir_4), '**Arab Maghreb Union**[ii]' (AMU), '**Gulf Cooperation Council**[iii]**'** (GCC)**,** '**Greater Arab Free Trade Area**' [iv] **(GAFTA)** re-adapted into the '**Pan Arab Free Trade Area'** (PAFTA)[v] (Abed and Davoodi, 2003; ACHY, 2006; Dadush and Falcao, 2009; Rouis and Tabor, 2013). The diagnosis of MENA's Intra-regional trade should account for the effect of those smaller sub-initiatives and examine whether they genuinely contributed in increasing MENA countries trade flows. One of the most pronounced results in line with the notion regarding MENA's sub-initiative was detected by Portugal-Perez and Freud (2012); estimating that trade flows of sub-regional initiatives in MENA (Agadir Agreement, GCC, AMU and PAFTA) increased its intra-MENA trade by almost 26 percent more than estimating the intra-regional flows for the entire region.

The main motivation of this chapter is to consider higher intra- regional trade flows[49] among MENA countries which could be attained; once we control for the presence of democratic institutions and governance, showing a direct impact on trade regimes and policies. Ideally, democratic regimes and institutions in the context of MENA should enable executives and decision makers to eliminate trade constraints and to intensify intra-regional trade flows and to support the well-functioning of successful sub intra-regional initiatives within MENA. In consequence, this chapter sheds light on the impact of good governance on trade regimes and the transformation of MENA countries from autocracies to democracies or mixed regimes, which eventually leads to greater effectiveness and vigour in their governing institutions and above all less costs to trade among MENA's institutions.

[49] Intra-regional trade flows: means in this context estimating the merchandise trade in manufactured goods of aggregate exports and imports of the region's countries

In addition to the theoretical foundation based on the literature of modelling the relationship between good governance and trade regimes, the empirical methodology will be conducted by means of a '**Bilateral Trade Gravity Model'**; estimating the dependent variable as MENA's bilateral intra-regional trade of manufactured goods, based on a subset of data for MENA region driven from CEPII's Gravity Dataset 2014 for (TRADHIST) covering 178 countries and our data will cover a timeframe of 25 years. Democracy and trade freeness measures have been captured in the model by using '**Polity IV Index** and '**Trade Freeness Index'** introduced as augmented variables to the classical bilateral gravity model aimed to assess intra-MENA's trade flows. Those indices have been previously utilized to measure the significance of trade flows for other regions by Duc and Lavallée and Siroën (2008); Bhattacharya and Wolde (2009); Lutmar (2011). Above all, the study will show that MENA's intra- regional trade flow intensity is more pronounced, when the region was broken into initiatives as that of GCC, Agadir_4, PAFTA and AMU as previously advocated by Al-Atrash and Yousef (2000) and Abedini and Péridy (2006) and Ekanayake and Embry-Riddle, (2009)

The model's explanatory power was augmented to account for democracy and trade restrictiveness measures to be calibrated and introduced in the gravity equation for estimation purposes. The Estimations will run on two baseline scenarios, once using Ordinary Least Square (OLS) estimations and another using, Silva and Tenreyro (2006) '**Pseudo Poisson Maximum Likelihood Estimator' (PPML)** for robustness and to treat for Heteroskedasticity and zero trade flows. Both first and second scenarios will incorporate polity IV and trade freeness indices and decompose those indices into several thresholds. Scenario 3 will demonstrate the interaction between trade restrictiveness and governance measures and finally last scenario will divide MENA countries into sub-regional initiatives to detect, which sub-regional initiative contributed the highest intensity to the Region's trade flows. General results have shown consistency of standard gravity variables across all estimations and specific results demonstrated that Polity_IV index increased intra-regional trade between MENA countries of mixed regimes by a factor of 0.5, meanwhile, Trade Freeness index has shown higher significant levels in raising intra-MENA trade by a factor of 0.8. More accurately said the interaction term between Polity IV and trade freeness indices has shown a substantial increase in MENA's intra-regional flow by a factor of 2 at 104 percent. This implies, that we cannot confirm that only the transformation of MENA's governance and regimes will be the reason behind the increase in its intra-regional trade flow.

The rest of the chapter is structured into section 2 Moves on to the literature review, section 3, giving a descriptive overview on MENA countries trade flow Section. 4 presents the empirical

estimations and different gravity model scenarios and followed by results in section 5 and finally policy implications and conclusion

2.2 Revisiting the literature on linkages between international trade and governance of institutions within the context of MENA Region

Before bringing to the readers' attention the methodology used in this chapter and its impact on MENA's intra-regional trade flows, some of the principal papers linking between democracy and trade institutions will be identified. Starting with the proposition by Mesquita and Downs (2005) suggesting that higher economic growth stimulates democracy in all governing institutions, however, the opposing tides of autocratic regimes will be more resistant just working to strengthen their power and run their institutions in the same corrupt manner. Another proposition suggested by Whalley (1998) and Mansfields et al. (2002) and Wu (2004) that countries moving at compatible democratic paces are readier to sign trade agreements committed to their voter's credibility. Rosendurff and Shin (2014) re-instated 10 years later that democratic states signed more agreements than autocracies to self-insure themselves against policy uncertainties.

Finally, other views postulated the existence of simultaneity and endogeneity between higher trade and democratic institutions. Some of the literature stream supported the notion of. comprehensive trade agreements such European Neighbourhood Policy between MENA countries and E.U. will eventually act as the mediator to speed up democratization and create in-depth negotiations and understanding between trading partners (Gylfason and Martinez-Zarzoso and Wijkman, 2012). The same line of thought was advocated by Córdova and Meissner (2006); arguing that one standard deviation increase in trade with other countries, will eventually transform economies into higher states of democracy and have them move up the ranking of their polity score.

The context of how democracy and good governance impacted MENA's trade regimes and institutions has first emerged, when Barro (1991) wrote about the conflicts in MENA region that led to absence of institutional stability and twenty-four years later Sab (2014) shared the same insights regarding the persistent conflicts in MENA region, accompanied by spill-over effects disrupting stability across the rest of the Region's countries. As for the consequences, Abed and Davoodi (2003) and Nabli and Jaurégui and Aysan (2008) emphasised that lagging political and institutional reforms typically in MENA countries led to fragmentation, recurring conflicts and authoritarian ruling, which stood in front of the progress of the region's institutions. Also, more authors as Lutmar (2011) could detect the positive relationship between trade openness and democracy over the long-run in all regions apart from the MENA region. Finally, Nabli and

Jaurégui (2012) asserted that democracy is not a **'Binding Constraint'**[50] to the region's growth, however, an important step-forward to guarantee better governance, greater accountability towards enabling trade and investment climate. On the level of sub-regional initiatives, Miniesy and Nugent (2005) predicted that MENA's intra-regional trade fell short due to the absence of trade friendly policies and prevalence of fragile governance and later on after 10 years Zaki and Karam (2015) estimated MENA region's conflict and weak governance to be equivalent to imposing a 5 percent tariff on the value of the region's trade (Nabli et al., 2008; Ianchovichina and Ivanos, 2014; Hoekman, 2016).

Apart from that, democratic regimes grant higher incentives to unilateral openness and as well tariff negotiations between countries of democratic regimes will facilitate removal of barriers and offer more concessions than between countries of mixed regimes (Rosendorff, 2006) Many econometric approaches have modelled the impact of governance on MENA's trade policies and institutions, using a battery of estimations, on top of which are the bilateral trade gravity and general equilibrium models. The literature proposed a number of variables and indices to account for wars, conflicts, polity IV indicators, weak governance indicators, 'Trade Restrictiveness Dummies'[51],lower voice and accountability variables, all employed to capture the fragility of the region's trade institutions. Most of the findings by Al-Atrash and Yousef (2000and Miniesy and Nugent (2005) and Cieslik and Hagemejer (2009); and Bhattacharya and Wolde (2010) and Lutmar (2011) and finally Chauffour and Hoekman (2013), when modelled indicated that the region's intra-regional trade performance is underestimated on average by [10-15] percent below its expected value.

To the best of the knowledge, the use of **Polity IV index** to control for governance of institutions has been further elaborated in the literature review on Eastern Europe's trade by DUC and Lavallée and Siroën (2008) and Aidt and Gassenbner (2010) and not for MENA countries

[50] Binding Constraint: meaning that directly after a regime is shifted into a democratic one, there should be a direct abrupt change in its institutions, it takes time to achieve this shift and recovery of the institutions from the previous influence into ones of higher credibility and accountability, and better governance promised to investors. Nabli and Jáuregui (2012)

[51] Trade Restrictiveness Dummy are driven from trade restrictiveness index (TRI); employed as an open scale to measure trade protection through the tariff and non-tariff barrier components and they used in explaining the lower integration of intra-trade figures among MENA countries and it includes the average time to clear exports and imports from the customs, inefficiencies in trade institutions and costs associated with inefficiencies, trade infrastructure and logistic services. This dummy turned out to be statistically significant through the gravity model estimations including trade for intra-MENA countries, however, it is not region specific and does not particularly model trade impediments of Arab countries (Al Atrash and Yousef, 2002)

(Mansfield et al, 2002; Wu,2004; Carrere,2006; Rosendurff and Shin, 2014; Almargo,2015).For the purpose of accurately and to account for good governance and democracy, Polity IV is a comprehensive index, which includes various aspects of liberties and the exercise of preferences about alternative policies. Second the index incorporates the existence of institutionalized constraints on the exercise of power by executives in all governing bodies and it implicates that executive recruitment in governing institutions should be in the best interest of the country's trade policies and regimes. The index was decomposed into several measures indicative of the country's governance regime classification. One of the index's advantages is considering the differences in scales and sensitivities across scores of democratic, mixed and autocratic regimes and their impact on institutions.

Another index with the tendency to control for how trade policies and decisions are implemented will be the '**Trade Freeness Index'**; as a composite index encompassing height of tariff, non-tariff and technical barriers. Nevertheless the trade freeness index is ample enough to proxy for daily bottlenecks in trade institutions, measures of transparency and anticipation of trade regimes in evaluating deficiency in cargo tracking, port congestion problems, complicated transhipment regulations, absence of cross border transit procedures, improving trade facilitation measures and connectiveness for firms (Hummels , 2001; Djankov et al. 2006; Shui and Walkenhorst, 2010; Quality of Government D1ataset Book Code, 2011; Chauffour and Hoekman, 2013). Apart from here, those two indices (Polity_IV) and (Trade freeness) were transformed into variables to be incorporated into the next step of the estimation methodology through the augmented gravity model to account for governance and its impact on MENA countries' governance regimes and how it affects intra-regional trade intensity in MENA.

2.3 Intra-MENA's trade Descriptive Analysis

Although MENA's intra-regional trade flow was relatively much smaller than its merchandise trade with the 'Rest of World[52]' (RoW); as shown previously in Figure 2.1, yet its trade flow with (RoW) has proven to be fluctuant over the 20 years' period ending 2010. The fluctuations and downturns in the region's trade performance were justified by the sequence of political instabilities, civil wars, border conflicts, economic global shocks the region was exposed to

[52]MENA trade with RoW increased after 2005 due to the entrance of some of the region's countries (e.g., Morocco, Bahrain, Jordan and Egypt) in 'Free Trade Agreements' [52] and 'QIZ'[52]with the U.S.A in favour of stimulating merchandise trade between MENA countries and RoW (Rouis and Tabor, 2013).

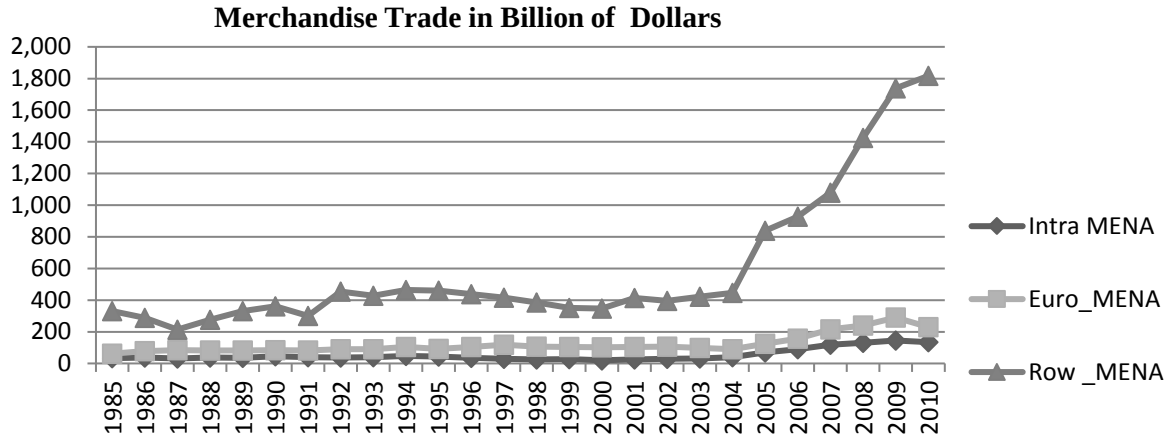
during this time frame. Some of the region's most significant incidents which were also accounted for in model by the variables of: **Conflict 1** and **Conflict 2** for the '**Iran Iraq War**' associated with rising oil prices 1987 and '**Iraq Kuwait – Gulf War**' during 1991, meanwhile **Conflict 2**[53] included all the rest of conflicts and civil wars in the region. Besides, **Crisis 1** and **Crisis 2**, which are both accounting for '**Global Food Crisis 2006**' and finally '**Global Financial Crisis**' of 2009 respectively (Nabli et al, 2008; ACHY, 2010).

As well there is a remarkable peak for MENA's trade with the (RoW) during 2004, this is when Preferential Trade Areas (PTA) with RoW and E.U started to come into action. An example would be the QIZ agreement between U.S, Egypt and Israel and free economic zones between Jordan and United States. MENA Region's exports to RoW relied on unmanufactured raw materials and primary semi-processed products, however, the Region's imports superseded their exports by nearly USD 90 billion during 2004, as they were still unprepared to compete with (RoW) giant emerging economies such as India and China (Rouis and Tabor,2013).

Inspecting MENA's intra-regional merchandise trade (X+I), has shown that it did not exceed 10 percent of the region's total trade flows during 2010; which is consistent with the findings by Ekanayake and Embry (2009). Also, the sharp decline for MENA's intra-regional trade witnessed during 2000 overlapped in time with first wave of Euro-Mediterranean bilateral association agreements between E.U. countries and MENA countries, which proceeded accordingly: Tunisia 1998, Morocco 2000, Jordan 2002, Egypt 2004, Algeria 2005 and Lebanon 2006. The boom of agreements with E.U is suspected by many in the literature Rouis and Tabor (2013) and Hoekman (2016) to have caused intra-regional trade between MENA countries to be diverted to other regional blocs in RoW, and E.U. As well, it is evident that MENA's trade to the E.U. grew progressively since the inception of the Barcelona Process 1995, bilateral association agreements between E.U. members and MENA countries and this was captured in the methodological part through the Regional Trade Area with E.U. denoted as RTA_E.U. dummy variable.

[53] Conflict 2 in this context will include incidents in the region like Palestine – Israel conflict, tensions in Yemen, and other border tensions and in this case dummy given value 1 , for all MENA countries impacted by the conflict 2

Figure 2.1: Times series of Merchandise Trade (X+I) for MENA Region [1985-2010]



Source: Primary data extracted from CEPII dataset to estimate intra-trade flows for MENA countries

2.3.1 Polity IV Index capturing Governance and Trade Regimes

Polity IV and Trade Freedom indices are the two key indices both derived from Code Book of Quality of Governments dataset (2011). The index is first transformed into bilateral values through obtaining the average score of two countries and then the resulting index scores are re-calibrated based on the country's ranking on the original index. The '**polity Index'**; is defined as an index which monitors regime changes and their impact on the governance of institutions across all countries. It covers a graded scale of 21 points, with +10 score denoted at upper part of the scale as '**Consolidated Democracy**'[54]and -10 marked the '**Hereditary Monarchy**' [55]and additional ranges [-77, 66] assigned for extreme values not included in our dataset of MENA countries. On one hand Schmidt (2015) defined **'polity IV'**[56], as one of the precise indices

[54] Consolidated Democracy: refers to the high graded scale of democracy resulting from institutions built totally upon democratic regime and laws and signalling to citizen's values, concept and behaviour practice of democracy has been absorbed and changed and there is no way back to authoritarian system.

[55] Hereditary Monarchy: a form of power of ruling where sovereign power descends by right of inheritance and it signals in some instances and countries to the extreme state of autocracy.

[56] polity IV: comprised of four pillars recording changes in the institutionalized qualities of governing authority referring to the competitiveness of the executive recruitment whether in elections or transitional one. In second place comes the openness of executive recruitment through dual elections, constraints on the chief executives whether they are exposed to unlimited authority or more towards limitations. The participation in political institutions is it restricted or a secular one (Marshall and Gurr and Jaggars 2016)

capturing institutional transformation of countries from autocracies to democracies and it covers four main pillars regarding the quality of institutions and their governing authorities. These pillars are '**Openness of Elections**', '**Competition in Executive Recruitment**', '**Executive Authority Constraints**' and '**Participation Competition**'. It also accounts for convergences between governing authorities for institutions and among which are trade institutions across different countries. Accordingly, it is a comprehensive index spanning the full spectrum of institutionalized autocracies, mixed or incoherent regimes, strict dictatorships and autocratic regimes to fully institutionalized democracies. Almagro (2015) and Zeynalov (2016) identified the positive significant relation between polity and PTA's and revealed that one of the determinants of trade intensity between PTAs' is the existence of democratic countries, as they spontaneously tend to sign more PTA's and reduce costs of trade.

Table 1 exhibits Marshall and Gurr and Jaggers (2016) categorized MENA region countries based on their Polity IV scores and generally discovered that this region is still lagging on the index, when benchmarked to average scores of other regions. Unfortunately, MENA has been diagnosed with persistent democracy deficits over the last 40 years and it has shown that most of its countries fall within the range of autocratic and mixed scores on the Polity IV index. Only two countries from the region during 2016 could exceed the threshold towards the democracy score which is above 5.

Table 2.1: Categorization of MENA countries based on their individual Polity IV Index Scores during 2010

Based on polity IV index and their relevant scores 2013		
Autocracies [-10: -6]	**Mixed [-5: 5]**	**Democracies [+6: +10]**
Libya	Egypt	Lebanon
Oman	Algeria	Tunisia
Iran	Mauritania	Israel
Qatar	Iraq	
Saudi Arabia	Jordan	
Syria	Morocco	
United Arab Emirates	Sudan	
Kuwait	Yemen	
Bahrain	Palestine	

Source: Primary data from Polity IV Project by Marshall and Gurr (2013)

2.3.2 Trade Freeness Index Capturing Trade Barriers

On the other hand, **'Trade Freeness Index'**[57] as a sub component of Economic Freedom index originally developed by Heritage Foundation and denoted in our model as Trade Freeness. It is

[57] Trade Freedom index: is a composite measure of tariff and non-tariff barriers that affect the exchange of goods and it is used in quality of government database code book and denoted by Trade Freeness and it ranks world countries based on a combined composite measure of trade

composed of '**Trade Restrictiveness Regime indicators**' covering nearly 0.75 of the index's total value of 1 and which reflects upon the height of tariff and non-tariff barriers. The second component of the index is **'Trade Facilitation'** accounting for 0.25 and it includes custom services that are free from corruption, reliance on transparent risk management and prompt duties collection and refunds. According to Anderson and Neary (1996) a single indicator is not able to capture all trade barriers , however, the comprehensiveness of Trade Freeness allows to account for various levels of tangible tariffs and technical barriers imposed by trade authorities at custom points across the Region. As well it accounts for additional trade administrative and logistic impediments, such as; **'Administrative Impediments'**[58], transport constraints and custom clearance bottlenecks (Djankov et al., 2006; Bhattacharya and Wolde, 2010). In complementarity to restrictiveness measures, trade facilitation as the other component of the index, allows for the inclusion of a wide spectrum of tariff control prices, monopolistic and technical measures that are supposed to reduce trade compliance and rent seeking costs.

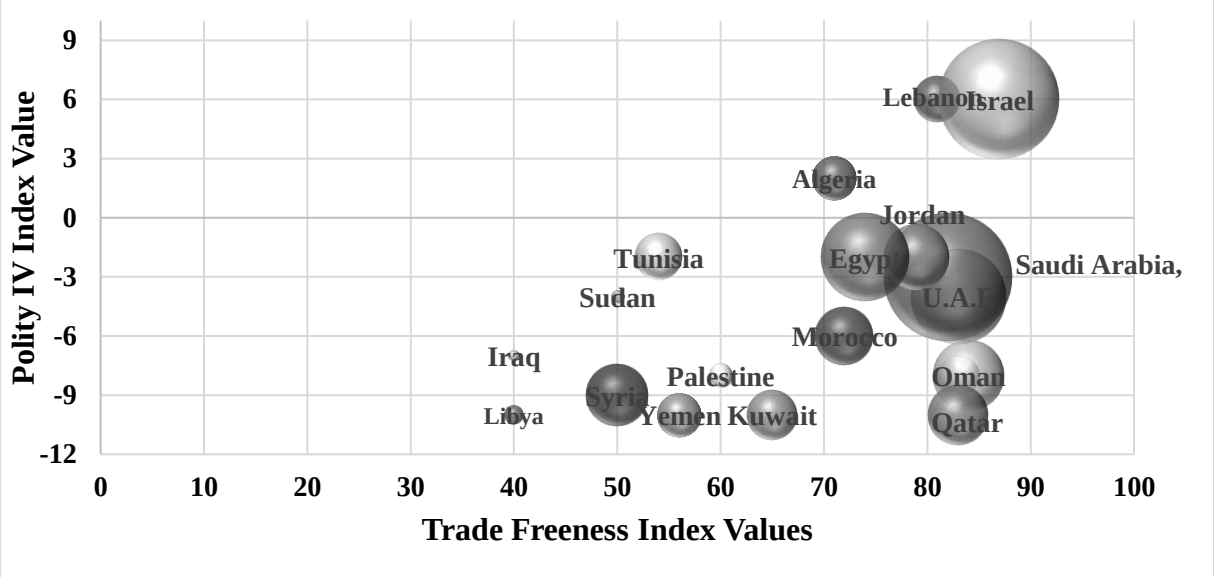
Figure 2.2 shows equivalent measures and interaction between Polity IV and trade freeness indices for MENA countries driven from Code Book of governments dataset 2011. The size of the bubbles in Figure 2.2 indicates to the share of each MENA country of the intra- regional trade (X+I) flow. Most of the Gulf countries except for Libya, Iraq, Sudan, Yemen and Syria during 2010 recorded on average score of above 60 points for mostly free trade; as their composite value on trade freeness index indicated to minimized tariff rates and only to the presence of non-tariff and technical barriers to trade for those countries. The same Gulf countries (U.A.E, Saudi Arabia, Qatar, Kuwait and Oman) were grouped under the category of Autocratic regimes ranging from less than -5. As well most of the MENA countries are scaled as evident around the mixed regime middle range of [5, -5] for their Polity IV index scores. The only two countries with democratic regimes as per se are Lebanon and Israel and both as well scored above the threshold of 80 for being classified as having trade freeness. More over, Figure 2.2 correlates between size of the bubble for share of intra-MENA trade and scales on both indices. It is evident that size of the bubble is directly correlated with Trade Freeness index of higher values, giving intuition that intra-regional trade flows might be more correlated to trade freeness

restrictiveness 0.75 and custom trade facilitation of 0.25. The Lowest score below 0.60 indicates presence of trade freeness, and lower barriers to trade, meanwhile, bigger scores over 0.6 0 indicates absence of trade freeness. (Teorell and Jan and Samanni and Sören and Bo Rothstein, 2011)

[58] Administrative Impediments: hindering trade represent lengthy and redundant trade procedures that might account from 2% up to 15% of the value of traded good. Non- tariff barriers as a part of administrative constraint will include and not be limited to : administrative burdens, information/transparency, inconsistent or discriminatory behaviour of officials, time constraint, payment, infrastructural challenges, securityconstraints and legal (OECD 2002; WTO 2012)

index as emphasized by the literature for that region. (Djankov et al., 2006; Bhattacharya and Wolde, 2010). It also shows from the upper right quadrant that the size of the bubble for intra-regional trade is relatively correlated to the higher values on the Polity IV index., however there are as well small and medium sized bubbles like Algeria and Lebanon who have advanced polity IV measures, yet their contribution to the MENA's intra-regional trade is minimal , this goes in reciprocity to Saudi Arabia and U.A.E substantially having a higher portion of the intra-MENA trade but at a lower threshold for Polity IV.

Figure 2.2: The combined Bubble diagram for trade Freeness and Polity IV indices and Intra-regional trade (X+I) Shares for MENA countries



Source: Primary data from Polity IV Project by Marshall and Gurr (2013) and Economic Freedom Index (2016)

2.3.3 Sub-Regional Initiatives within MENA

Based on our own dataset used in the empirical exercise of modelling MENA's intra-regional trade on this chapter, the region will be classified into several sub-regional initiatives as shown on Table 2.2. This classification is consistent with Bolle (2006), who suggested that the significance of intra- regional trade for MENA stands-out, when there is higher trade intensity and complementarity between countries of those smaller sub-initiatives. More on this behalf, several empirical models developed by Bhattacharya and Wolde (2010) using trade gravity equation have proven the lower significance of belonging to MENA in absolute; compared to testing the intensity of trade for the Region, when divided into smaller sub-regional initiatives. On this respect, many empirical studies obtained a negative coefficient for Intra-PAFTA trade

flows as they are formed of 17 MENA countries[59]. As a result, this chapter will also propose one scenario for dividing MENA into sub-regional initiatives to test for its robustness on increasing the intensity of MENA' intra-regional flows (Bhattacharya and Wolde, 2010; Carrére and Gourdan and Olarreaga, 2012; Carrére et al, 2012; Hoekman 2013)

Table 2.2: Sub Regional Initiatives within MENA for three years 2000-2005 -2010

MENA's Intra Regional Trade in Billions of Dollars	2000	2005	2010
GCC[60]	13	30	75
AMU[61]	13	10	15
Agadir Countries [62]	0	25	40
PAFTA	4	5	50

Source: Primary data extracted from CEPII dataset to estimate intra-trade flows for MENA countries

Again, as shown in **Table 2.2** with the chronological order for shares of sub-regional trade blocs in MENA starting with GCC group of 6 Gulf countries; known as one of the most successful sub-regional initiatives in MENA. GCC countries have aligned their common objectives to the free movement of labor, capital and full national identity regarding ownership and economic activity between their countries since 1981 (Boughanmi 2008; Hätinger, 2009; Rouis and Tabor, 2013). GCC as a sub-group in MENA contributed to 41 percent of intra-regional trade during 2009, however the backbone of its exports relies on oil and for this purpose the model's estimations will only capture petrochemical manufactures of this sub-region.

The second biggest initiative in size and trade value within MENA was the Pan Arab Free Trade Area (PAFTA) re-launched during 1997 and was known before as Greater Arab Free Trade Area (GAFTA); when it first came into action during 1981. PAFTA is composed of 17 MENA countries, which shared at 28 percent of MENA's intra-regional flows during 2010 and their members are working on the common goal of boosting the region's intra- trade activity through reducing most favoured nation tariffs (MFN). Although PAFTA countries managed to bring down their average ad valorem tariff from nearly 15 percent during 2002 to 6 percent in 2009, nevertheless, there still appears to exist wide discrepancies in average tariff rates with less than

[59] Pan Arab Free Trade Agreement annotated (PAFTA) consists of 17 countries : they are Jordan, United Arab Emirates, Bahrain, Saudi Arabia, Oman, Qatar, Morocco, Syria, Lebanon, Iraq, Egypt, Palestine, Kuwait, Tunisia, Libya, Sudan and Yemen.
[60] Gulf Cooperation Council (GCC) formed of this six countries Saudi Arabia, United Arab Emirates, Qatar, Oman, Kuwait and Bahrain

[61] Arab Maghreb Union (AMU) includes Tunisia, Algeria, Libya, Morocco and Mauritania
.
[62] Agadir Association Agreement countries: Tunisia, Jordan, Egypt and Morocco

5 percent import duties for GCC countries contrasted to 30 percent for AMU countries. Thus, MENA countries are still facing the traditional custom duties, which leaves them at higher vulnerability to suffer from trade distortions (IMF Trade Data base 2007; Hätinger 2009; Shui and Walkenhorst, 2010).

In third position came **Agadir Association Countries**; as a sub- regional initiative under the umbrella of the Euro-Mediterranean Free Trade area ratified between MENA countries and 28 EU members. Agadir countries marked 22 percent of the region's intra- merchandise-trade during 2009 and its success came after engaging in several joint trade schemes with the E.U. They represent trade facilitation measures, services liberalization, investments incentives, besides intellectual property rights and rules of origin adoption (Agadir Agreement Technical Unit report, 2009; Rouis and Tabor, 2013).

The least share is attributed to **Arab Maghreb Union (AMU)** at approximately having 9 percent of Intra-MENA's flows and mainly dependent on tariff reduction, however, it did not fully succeed in removal of behind the border and technical barriers to trade. Due to the significance of the four previously mentioned sub-regional initiatives in determining MENA's intra-regional flows. Last part of the chapter will be dedicated to estimating the separate effects of each of those sub-regional areas on MENA's intra-regional trade flows. (Rouis and Tabor, 2013)

2.4 Econometric Analysis

2.4.1. Theoretical Gravity Model Framework to measure Intra-MENA Trade

The gravity estimation of this chapter is grounded on the following literature of the classical bilateral gravity equation used to measure the intensity of intra-regional trade flows between MENA countries. The intensity of trade flows between country pairs increases with the increase in their economic size proxied for GDPs, (Mitchel, 2007) and decreases with increase in geographical distance between two countries and regions, which acts as a control for bilateral trade barriers between country pairs. (Disdier and Head, 2008; Dincecco and Prado, 2013) The general framework of the gravity equation for taking lineal transformation OLS estimations will be:

$$\text{Ln}\,(T_{ij,t}) = \text{Ln}(G) + \beta_1 \text{Ln}\,(GDP_{it}) + \beta_2 \text{Ln}(GDP_{jt}) + \beta_3\, \text{Ln}(distw_{ij}) + \beta_4 Border_{ij} + \beta_5 Language_{ij} + \beta_6 Colony_{ij} + Current\ Colony_{ij} + \varepsilon_{ij,t}$$

Eq.(2.1)

The Augmented gravity variables here will incorporate the $Border_{ij}$ dummy variable to capture the presence of contiguous borders between trading partners i and j as elaborated by Frankel, Stein and Wei (2005), meanwhile, $LANG_{ij}$ and $Colony_{ij}$ both account for existence of a common official language and colonial ties between trading partners respectively (Frankel ,2007). The model is in line with the considerable realm of empirical literature, contributing to the enrichment of the theoretical framework of the gravity variables with Anderson and Wincoop (2003) adding the concept of 'Multilateral Resistance'[63] to approximate for trade costs and elasticity. Then later augmented variables were included to approximate for cultural, historical, linguistic, political aspects, currency unions and even the effect of membership into WTO on international trade. (Rose, 2003; Frankel, Stein and Wei, 2005; Frankel, 2007; Baier and Bergstrand ,2007; Mitchell, 2007; Head and Mayer, 2014). These estimations go beyond to include other augmented variables that we believe will control for the Region's specific governance and trade regimes and MENA's intra-regional initiatives.

2.4.2 Model's Specification and Definition of Variables

In this case, our dependent variable is the aggregate Intra-regional trade flow between MENA countries. Regarding the exogenous variables, we **first** consider a group of standard gravity variables to approximate economic size denoted by GDP_{it} for country i and GDP_{jt} for country j. Both GDPs are based on nominal values derived from the Technical Report on Global Prices and Incomes Database (2013) to mitigate the occurrence of the Bronze Medal Error (Baldwin and Taglioni, 2006). **Second**, bilateral trade costs between country i and j are capturing multilateral resistance as motivated by Anderson and Wincoop (2003).

Third, a set of historical, cultural and, linguistic affinity variables adapted from CEPII's Gravity Dataset 2014 (TRADHIST). **Fourth**, MENA region's countries membership in' General Agreement on Trade and Tariffs' (GATT) denoted by $bothin_{ij}$ and' Generalized System of Preferences scheme' introduced in the model as GSP_{ij} based on Rose (2003). Both

[63] Multilateral Resistance: Apart from the mutual attraction between the economic masses of two trading partners, there are additional forces and trade costs that make their trade more resistant (Anderson, 1979; Anderson and Vancoop, 2003)

dummies were augmented to reflect on MENA Region's countries membership in 'General Agreement on Trade and Tariffs' (GATT) and 'Generalized System of Preferences scheme' (GSP); covering schemes of tariff reduction and privileges given to developing countries that are not members of a certain PTA. The above-mentioned dummies reserved 1, when two MENA countries are members of WTO or eligible to apply GSP; otherwise the dummy value will be zero.

As well regional trade areas of MENA countries with E.U. agreements are incorporated in the model as Baier and Bergstrand (2007) previously emphasized. **Fifth** are the Conflict_1 dummy based on Iran-Iraq war 1987 and Iraq Kuwait war 1991, and in parallel Conflict_2 dummy based on other civil and armed conflicts in the region. Also, Crisis_1 dummy for food crisis of 2006 and crisis_2 to reflect on 2009 financial crisis. All dummies are incorporated in the model to reflect on the Region's nature in line with the descriptive analysis introduced in this chapter and with similar dummies used in the literature by Al-Atrash and Yousef (2000) and Miniesy and Nugent (2005) and Cieslik and Hagemejer (2009); and Bhattacharya and Wolde (2010) and Lutmar (2011) and finally Chauffour and Hoekman (2013).

Equation 2.2 refers to the standard gravity equation estimating and denoting the dependent variable as T_{ijt} to measure the value of bilateral trade between country i of origin and country j of destination during a certain year t and given a set of all possible independent variables and through applying exact double log specification of the model as follows:

$$T_{ijt} = \beta_0 + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) + \beta_3 \ln(Dist_{ij}) + \beta_4(Border_{ij}) + \beta_5(Language_{ij}) + \beta_6(Current\ Colony_{ij}) + \beta_7(Colony_{ij}) + \beta_8(bothin_{ij}) + \beta_9(GSP_{ij}) + \beta_{10}(rta\_E.U_{ijt}) + \beta_{11}(Conflict1_{ijt}) + \beta_{12}(Conflict2_{ij}) + \beta_{13}(Crisis1_{ijt}) + \beta_{14}(Crisis2_{ijt}) + \pi_i + \chi_j + \gamma_t + \varepsilon_{ij}$$

Eq.(2.2)

2.4.2 Additional Variables: Polity IV and Trade Freeness Indices and Sub-Regional Initiatives

Additional variables will be augmented to the gravity equation to capture the governance and trade freeness measures through Polity IV and Trade Freeness indices added and the real intention at this point is to measure the governance and regime similarity or dissimilarity between MENA country pairs based on specific thresholds on the Polity IV and trade freeness.

As the Polity and trade freeness indices are both unilateral, these indices will be transformed into a bilateral index by constructing an average index between country pairs to preserve the continuity nature of the index. A second step would be to re-define polity IV as a dichotomous

dummy variable with country pairs; taking the value of one, if their score is towards democratic or mixed regimes and otherwise both countries will be given a zero dummy in consistency with literature's methodological approach to model the index elaborated by Duc, Lavallée and Siroën (2008). A third step will be to classify country pairs into 3 thresholds in consistency with the Marshall and Jaggers (2010) Quality of Governance datasets. The Polity IV measures will be divided: into Polity_Demo dummy for MENA country pairs with a threshold for the interval [5,10]. Polity_Mixed dummy for MENA country pairs with a threshold between [-5, 5] and finally Polity_Autoc dummy for MENA country pairs with a threshold of [-10 -5] (Mansfield et al, 2013).

The second index used to adjust for trade regimes and policies will be the trade freeness index previously used for the same motivation but with a different set of countries by Bhattacharya and Wolde (2010). Trade Restrictiveness Index components assess MENA's Intra-regional trade regimes and in our estimations, the trade freeness index will be converted into an average score for MENA's bilateral trading partners. Then a it is re-calibrated in a similar way to Polity IV index into three thresholds from [0-100] in the following manner: Trade_Free dummy for country pairs in MENA region at a threshold between [80-100], Trade_mfree dummy for country pairs that are mostly free in trade regulations holding an interval of [60-80] and finally Trade_unfree dummy for [40-60].Last variables to be introduced in the gravity model will allow to capture the classification of the region into four sub-regional trade initiatives chronologically introduced as: PAFTA_17, GCC, AMU and Agadir_4

Table 2.3: The Variables of Bilateral Gravity Model and Expected Signs:

Variable	Description	Expected Sign	Consistency with Literature
T_{ijt}	Trade from origin o to destination d for year t and vice versa	_____	
Y_{it}	Nominal GDP in the origin country (o) (exporting) for year t.	Positive	Mithcell (2007)
Y_{jt}	Nominal GDP in the destination country (d) (importing) for year t.	Positive	Mitchell (2007)
$Distw_{ij}$	Distw is a city population weighted mean between each pair of countries, extracted from the CEPII's GeoDist data set	Negative	CEPII 2017; Dincecco and Prado, (2013)
$Border_{ij}$	Dummy=1 if (i and j are contiguous; otherwise 0)	Positive	Frankel, Stein and Wei (2005); Frankel (2007)
$Lang_{ij}$	Dummy=1 if (i and j share common language; otherwise 0)	Positive	Frankel, Stein and Wei (2005)
$Current\ Colony_{ij}$	Dummy=1 if (o and d both belong to same colonizer; otherwise 0)	Positive	Echiergreen and Inrwin (1998)
$Colony_{ij}$	Dummy=1 if (i and j both belonged to the same colonizer historically; otherwise 0)	Positive	Head and Mayer and Ries (2009)
$bothin_{ij}$	Both are members of General Agreement on Trade and Tariffs reserves the value of dummy = 1; otherwise 0	Negative	Rose (2003)
gsp_{ij}	Membership dummy in the Generalized System of Preferences scheme applied across all developing countries equals 1; otherwise 0	Positive	Rose (2003)
$rta\_eu_{ij,t}$	Accounting for regional trade agreement dummy with E.U. =1 for both countries i and j in time t; otherwise 0	Positive	Baier and Bergstrand (2007)
$Conflict\_1_{ijt}$	It is a dummy taking the value of 1 in-case of Iran- Iraq war during 1987 & Kuwait -Iraq war 1991; otherwise 0	Negative	Karam and Zaki (2016)

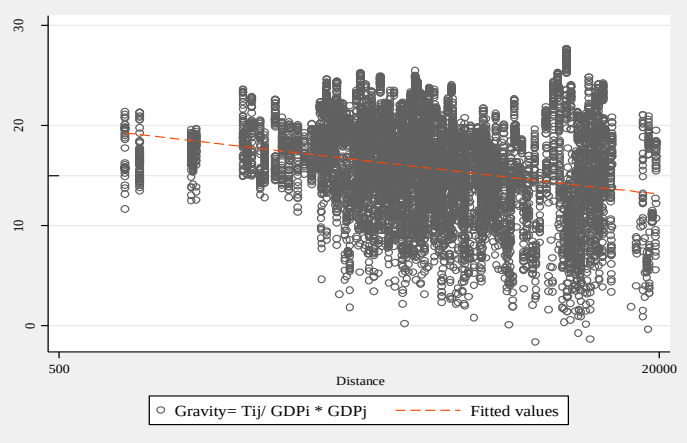
$Conflict\_2_{ij}$	It is a dummy taking the value of 1 in-case of rest of region conflicts, Yemen, Lebanon, Israel -Palestine.	Negative	Karam and Zaki (2016)
$Crisis\_1_{ijt}$	It is a dummy taking the value 1 during 2006 for the case of food crisis; otherwise 0	Negative	Karam and Zaki (2016)
$Crisis\_2_{ijt}$	It is a dummy taking the value 1 during 2009 for the case of financial crisis; otherwise 0	Negative	Karam and Zaki (2016)
$Polity\ IV\_MENA$	Weighted index at value between [-77,5] for polity[vi] and then converting it into a dummy of one for both countries i and j given that their index value at a threshold of more than 5; otherwise 0	Negative	Gurr et al. (2003); Duc and Lavallée and Siroën (2008)
$Trade\_Freeness_i$	Trade Freeness Weighted index taking dyad value ranging from [40- 80] for trade freeness between country pairs and then converting it into a dummy for both countries i and j equal to one given that their index value is more than 80 for free	Positive	Bhattacharya and Wolde (2010)
$PAFTA\_17_{ij,t}$	Pan Arab Free Trade Area is a dummy variable of 1; when both countries are member of this area during time t	Mixed	Al Atrash and Yousef (2000)
$GCC_{ij,t}$	A dummy variable reserving 1 if both countries of the 17 are members of Gulf Cooperation countries during time t	Positive	Al Atrash and Yousef (2000)
$AMU_{ij,t}$	A dummy variable equals to 1; given that both countries are members of the Arab Maghreb Union during time t	Positive	Al Atrash and Yousef (2000)
$]Agadir\_4_{ij,t}$	A dummy variable equals to 1; given that both countries are members of the Agadir association agreement (Tunisia, Egypt, Morocco and Jordan	Mixed	Al Atrash and Yousef (2000)
$\pi_{i,}$	Origin country i fixed effects		Eaton and Kortum (2002) and Chaney (2008)
χ_j	Destination country j fixed effects		
γ_t	Year Time Fixed effects		

Own's Elaboration Gravity Model output derived from CEPII Gravity dataset (2014) [TRADHIST]

2.4.3 Model's Data

The model's data was derived from the CEPII gravity dataset [64] 2014 [TRADHIST] used for all countries pairs and then a subset of the data was employed to assess aggregate flows for the MENA region (Fouquin and Hugot, 2016). The subset of the data for this purpose considered a 25-year timespan; beginning from 1985 up till 2010 to incorporate conflicts and crisis occurring during this time frame. The collected data is unbalanced panel data for 21 MENA countries by origin and destination at an approximate number of observations 11,025 excluding zero flows. Apart for defining the data of this gravity, it is necessary to clarify that the gravity model estimations of this chapter will only deal with merchandise and petrochemicals manufactures and not with crude oil flows. Data for GDP for i and j was obtained from Technical Report on Global Prices and Incomes Database (2013), meanwhile, data on distance, contiguity, colonial and language dummies is derived from CEPII's Gravity Dataset 2014 (TRADHIST). In this case our dependent variable of bilateral trade flow between MENA countries is benchmarked by a standard ISO identifier code for countries running across years compared previously to other estimations (Comtrade Statistical Database, 2009; Head and Mayer, 2013). The data for the three dummies of GATT, GSP and RTA_E.U. are in consistency with Rose (2003) and Baier and Bergstrand (2007). For practicality purposes data of Polity IV and Trade Freeness were extracted from the Quality of Government dataset for 2011; which could be easily merged by country ISO code identifier with CEPII gravity dataset for 2014.

Figure 2.3: Relationship between Gravity defined as (Tij/GDPi *GDPj) and Distance MENA



Own's Elaboration Gravity Model output from original dataset

[64] CEPII gravity dataset from the 'Centre d'Estudes Prospectives et d'Informations Internationales'; allows the estimation of bilateral international trade flows in the form of gravity equation accounting for bilateral GDP flows between country pairs and trade costs through bilateral distance Dyad. (Head and Mayer, 2013)

2.4.4 Estimation Methodology: Baseline Scenarios with OLS and PPML.

The two principal econometric estimators used were OLS and comparatively 'Poisson Pseudo Maximum likelihood' (PPML) to validate the consistency of the expected signs across the gravity estimations and account for zero flows. First baseline estimation method relied on '**OLS Regression**'[65]and incorporated all variables of equation 2.2 except for Polity IV, Trade Freeness and sub-regional dummies. The only uprising problem with OLS estimator is undermining almost 20 percent of the dataset lost as zero flows and for accurate reporting purposes and accounting for all observations without reducing the model's explanatory power, PPML estimation Silva-Santos and Tenreyro (2006) was employed

It is important to mention as well that a set of year and country fixed effects by origin and destination will be introduced to PPML baseline estimation. Those fixed effects represent time invariant characteristics affecting our dependent variable and at the same time accounting for specific characteristics and multilateral resistance of origin, destination, and time in the model. The incorporation of fixed effects will prevent correlation between the error term and the dependent variable of average bilateral trade value known as, 'Heteroskedasticity Autocorrelation Robust Standard Errors' (HAC); which could underestimate the model's robustness, as previously indicated by Rose (2003) and (2004) and Vogelsan (2008).

This is the augmented gravity equation estimated by PPML and denoting the dependent variable as T_{ijt} measuring the value of bilateral trade between country i of origin and country j of destination t for time in MENA region; given a set of all possible independent variables, in addition to the bilateral polity IV and trade freeness indices dummies both capturing MENA's intra-regional.

Senarios 1-4

$$T_{ijt} = \beta_0 + \beta_1 \ln(GDP_{it}) + \beta_2 \ln(GDP_{jt}) + \beta_3 \ln(Distw_{ij}) + \beta_4(.Border_{ij}) + \beta_5(Language_{ij}) + \beta_6 Current\ Colony_{ij} + \beta_7(Colony._{ij}) + \beta_8(Bothin_{ij}) + \beta_9(GSP_{ij}) + \beta_{10}(rta\_eu_{ijt}) + \beta_{11}\ Polity\ IV\_MENA_{ijt} + \beta_{12} Trade\_Freeness_{ijt} + \beta_{13}\ PAFTA\_17_{ij,t} + \beta_{14}\ GCC_{ij,t} + \beta_{15}\ AMU_{ij,t} + \beta_{16}\ Agadir\_4_{ij,t} + \beta_{17}\ Conflict\_1_{ij,t} + \beta_{18}\ Conflict\_2_{ij} + \beta_{19}\ Crisis\_1_{ij,t} + \beta_{20}\ Crisis\_2_{ij,t} + \pi_i + \chi_j + \gamma_t + \varepsilon_{ij} \quad \textbf{Eq.(2.3)}$$

[65] OLS (Ordinary Least Squared Method): the econometric estimation used in calculating the gravity model for the country pairs. It highlights the coefficients of the model's independent variables in relation with the dependent variable. It also computes the standard errors that are robust to clustering by country pairs (Rose 2003).

Table 2.4: Base line 1 and 2 Gravity Model Estimations by using OLS and PPML Estimators

Variables	Baseline (1) OLS_1 Ln Trade	Baseline (2) PPML1 Trade
lnGDP_i	0.791***	0.755***
	(0.0199)	(0.156)
lnGDP_j	0.981***	0.242**
	(0.0138)	(0.108)
LnDistw$_{ij}$	-1.230***	-0.712***
	(0.0323)	(0.0339)
Border $_{ij}$	0.567***	0.391
	(0.0877)	(0.269)
Language $_{ij}$	1.414***	1.123***
	(0.0560)	(0.0323)
Current Colony $_{ij}$	0.313***	0.377*
	(0.0552)	(0.198)
Colony $_{.ij}$	1.289***	1.345***
	(0.125)	(0.156)
Bothin $_{ij}$	0.107*	0.977*
	(0.0598)	(0.0711)
GSP$_{ij}$	-0.252**	-0.263**
	(0.0984)	(0.131)
Conflict_1	-0.0268	-0.387
	(0.397)	(0.364)
Conflict_2$_{ij,t}$	-0.565	-0.104
	(0.440)	(0.477)
Crisis_1$_{ij,t}$	-0.361***	-0.396***
	(0.117)	(0.146)
Crisis_2$_{ij,t}$	-0.680***	-0.706**
	(0.123)	(0.129)
rta_eu$_{ij}$	0.125***	0.127***
	(0.0235)	(0.0237)
Constant	9.05***	18.05***
	(0.455)	(0.603)
Country i Fixed Effects	No	Yes
Country j Fixed Effects	No	Yes
Year Fixed Effects	No	Yes
Observations	11,394	13,678
R-squared	0.940	0.671

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

2.4.5 Standard Gravity Variables Responsiveness and Expected Signs for Baseline 1 and 2 Models

Table 2.4 contains estimation outcomes resulting from OLS and PPML baseline models. The second column using the OLS estimates logarithm of trade as the dependent variable and leaving out 20 percent of the sample with zero bilateral trade. Bilateral gravity model variables behave as predicted by the literature and as indicated in showing highly significant coefficients for GDP of country i and j trading partners (shown in figure 2.4) especially between gravity variable $T_{ij}/GDP_i * GDP_j$ and $Dist_{ij}$. Most of the gravity variables and augmented variables realized the expected negative coefficients with the predicted magnitudes conducted through OLS and PPML Estimations. The coefficients of GDP_i, GDP_j has managed to increase bilateral intra-regional trade flow between MENA countries by 79 percent and 98 percent respectively at highly significant levels of less than 5 percent. As for distance, it has shown that distance works with the expected sign and magnitude. When it increases, it causes a factor of 2.4 [exp (-1.23) -1] decrease in intra-MENA trade flows. In this case trade cost barriers are taken as a proxy for distance and are statistically significant and are in consistency with the benchmark estimate of -1 reported in previous estimations for the region by Disdier and Head (2008).

As anticipated OLS coefficients are slightly higher in absolute values than those of PPML, however, PPML results are preferred to OLS's as they minimize the possible over exaggerated impact of geographical proximity and colonial ties on trade flows (Silva and Tenreyro, 2006). For PPML estimations the GDP_i and GDP_j are expected to increase by a factor of 2 [exp (0.755) -1] *100 and 1.3 [exp (0.242) -1] *100 respectively and cause the partial increase in intra-regional trade between MENA countries. As well distance shows negative elasticity at highly significant levels proven for the PPML estimator. The expected sign for the augmented variable of common language seem to work correctly across both OLS and PPML baseline estimations. They both show coefficients above unity of 1.4 and 1.1 respectively at highly significant levels and indicative to the partial increase of bilateral trade between MENA countries due to increased mutual understanding and harmony in legal aspects of trade institutions in contrast to other regional blocs in the world (Bethune and Ledgerwood and Riddle, 2009).

Although border effects here is much lower than common language dummy for the OLS and it is insignificant for PPML estimations, yet a common border between MENA countries resulted in a [exp (0.567)-1] which is translated to 76 percent increase in intra-regional trade for OLS estimations. It is interpreted that MENA countries with common borders have an

extra incentive to trade more and this result is in consistency with standard common border effects for gravity obtained by Helliwell (1998) and McCallum (1995)[66]. When it comes to sharing common colonial history[67]and ties, they play a substantial role in reflecting on higher intra -regional trade between MENA countries at highly significant coefficients of 1.28 and 1.34 respectively and at least historical colonial relationships, which are expected to reduce cultural differences between their countries. The rest of the dummies of Bothin, GSP and RTA were employed to account for free trade and bilateral agreements with E.U and having more privilege to trade with other countries in general. They are taken as an indication of regional bias in trade of MENA countries towards E.U. or RoW and controlled for as previously motivated by Rose (2003) and Baldwin et al (2006). Only regional agreements with E.U. for both OLS and PPML estimations have shown to increase trade slightly between MENA countries across both estimations at 13 percent, which might suggest some trade re-orientation from intra-MENA countries to inter-regional trade between E.U. and MENA countries. Apart from there we would be left with conflict 1 and 2, grasping the two main wars and other civil conflicts in the MENA and which did prove to decrease in intra-regional trade between its countries but did not appear to show any degree of significant impact on its trade in line with having the same sign of conflict dummy but not in robustness with the results of Karam and Zaki (2015). Finally, both food and financial crisis dummies have appeared to have their negative effects on intra-MENA's trade flows.

The time and country fixed effects by origin and destination and as well time fixed effects by Feenstra (2004) were introduced to the PPML estimations to help in accounting for unobserved country characteristics that are fixed over time; thus, allowing for these unobservable effects to differ between countries of origin and destination. Origin fixed effects expressed as π_i for origin country, destination fixed effects known $by\ \chi_j$.and γ_t for year fixed effects all control for unobserved heterogeneity and individualistic characteristics of observations over time. All the time changing variables retained the same signs for PPML estimations but some of the variables had shown lower significance

[66] Helliwell (1998) and Callum (1995) estimated the border effect to be around 20% in Canada US trade and that both countries were able to trade at 20 times higher attributed to sharing a common border and the implied effect.

[67] MENA countries sharing a common past before in Algeria, Morocco, Tunisia and Libya all being colonized by the French system long ago but all gained independence, as will be seen later the Arab Maghreb Union composed of those countries show one of the highest intra-trade coefficients in the MENA region.

2.4.6 Contrasting Gravity Models Results Across 4 Scenarios:

In this section, we describe four scenarios to be simulated from the gravity model, in order to capture the impact of governance and trade regimes on MENA's intra-regional trade through alternative measures of democratic institutions described by Polity IV, Trade freeness indices and finally sub-initiatives in the MENA region. The 4 scenarios which will be described in Table 2.5 The common estimator used across all rest of scenarios 1-4 will be PPML estimator:

Table 1Table 2.5: Summarizing Different Scenarios with Key results

Scenarios	New Augmented Variables	Estimation Method	Sign	Significance	Literature Intuition
Base line 1	Normal gravity Variables	OLS	+ve. -ve	High	Pro-intuitive
Base line 2	Normal gravity Variables	PPML	+ve	High	Pro-intuitive
First Scenario	Polity IV	PPML	+ve	High	Pro-intuitive
Second Scenario	Demo. Auto. Mixed	PPML	-ve -ve +ve	Low High High	Pro-intuitive
Third Scenario	Trade Free Mostly Free Unfree	PPML	+ve +ve –ve	High High High	Pro-intuitive
Fourth Scenario	PAFTA GCC AMU Agadir_4	PPML	+ve +ve -ve +ve	High Low Low High	Pro and Counter Intuitive

Own's Elaboration derived from output results of the Gravity models

Scenario 1 Introducing Polity IV Variable:

As we previously mentioned that the Polity IV index score was transformed to a bilateral average score for MENA's trading country pairs based on the thresholds for each group of regimes. Later-on as shown in **Table 2.5**, the **First Scenario** introduced the Polity _IV variable, which reserves the value of one, if both trading partners belong to democratic or mixed regimes. Otherwise the dummy will take the value zero for Polity dummies on the same grounded foundation used by DUC, Lavallée aand Siroën (2008) for Europe's polity IV dummy

Scenario 2 Classification of Polity IV to Democracies, Mixed and Autocracies:

This scenario rigorously decomposes the Polity IV score ranges for MENA countries as follows: the first dummy denoted as 'Polity_demo' and equals one, when two countries in MENA region both hold a democratic score of threshold greater than 5. The second dummy known as 'Polity_autoc'; reserving the value of 1; when both countries are autocratic with a bilateral score less than -5. At last for mixed regimes variable 'polity_Mixed' dummy; refers to a mix of both regimes; when two countries are characterized by having a mixed regimes at threshold less than five and greater than -5.

Scenario 3: adding the Trade Freeness Index and labelling it by threshold into Free, mostly free and unfree trade:

Adds the other necessary index to complement measuring trade freeness regimes and their restrictiveness and facilitation components. The index is re-adapted in a similar way to Polity IV index into three thresholds indicative to the difference between degrees of trade freeness categories given to country pairs. Then a dummy is conditioned according to a specific range of scores given to the index components; with trade free dummy, if the score exceeds 80 and mostly and unfree trade for country pairs of a score that is below 80[68].

Scenario 4: dividing MENA into sub-regional Initiatives to account for intra-regional trade flow:

The fourth scenario opts to untangle MENA countries to be re-group to sub-regional initiatives and trade areas. In the case of scenario 4, the region will be divided into four intra-regional trade areas proxied by dummies accordingly: PAFTA_17, GCC, AMU and Agadir_4 in the literature by Al Atrash and Yousef (2000) and Abedini and Péridy (2006); Ekanayake and Embry-Riddle, (2009). The classification of the region into sub-initiatives will act as a robustness to check which sub-initiatives has the most significant impact on MENA's intra-regional trade intensity.

[68] Both parts of trade freeness index in this instance refers to it as composed of 0.75 for trade restrictiveness measures and 0.25 for trade facilitation part, both together adding to 100% of trade freeness index value.

Table 2.6: Base line 2 using PPML Estimator and Scenario 1-adding Polity IV and Trade Freeness Indices Values and Sub-Regional Initiatives in MENA

Variables	Scenario1 PPML Trade	Scenario (2) PPML_Polity Trade	Scenario (3) PPML_Trade Freeness Trade	Scenario (4) Sub-Intra MENA Trade
lnGDP_i	0.755***	0.509***	0.452**	0.554**
	(0.156)	(0.136)	(0.183)	(0.131)
lnGDP_j	0.242**	0.853***	0.877***	0.326***
	(0.108)	(0.0694)	(0.0709)	(0.112)
lnDistW	-0.712***	-0.835***	-0.894***	-0.882***
	(0.039)	(0.014)	(0.015)	(0.120)
Border ij	0.391	0.264	0.607**	0.349
	(0.269)	(0.322)	(0.285)	(0.281)
Language ij	1.123***	1.123***	1.123***	1.123***
	(0.032)	(0.032)	(0.032)	(0.032)
Colony ij	0.377*	0.393*	0.401*	0.374*
	(0.198)	(0.168)	(0.182)	(0.126)
Current colony ij	1.345***	1.345***	1.345***	1.345***
	(0.156)	(0.156)	(0.156)	(0.156)
Bothin WTO ij	0.977*	1.319**	1.231**	0.794*
	(0.058)	(0.057)	(0.064)	(0.116)
GSP ij	-0.252**	-0.298**	-0.211**	0.0821
	(0.094)	(0.032)	(0.072)	(0.449)
conflict_1 ijt	-0.0268	-0.387	-0.234	-0.392
	(0.397)	(0.364)	(0.356)	(0.359)
conflict_2ij	-0.565	0.104	0.0904	0.0995
	(0.440)	(0.477)	(0.514)	(0.477)
crisis_1 ijt	-0.361***	-0.396	-0.297	-0.429
	(0.117)	(0.306)	(0.245)	(0.327)
crisis_2 ijt	-0.680***	-0.706**	-0.599**	-0.742**
	(0.123)	(0.319)	(0.265)	(0.342)
rta_E.U.ijt	0.125***	0.125***	0.125***	0.127***
	(0.0235)	(0.0235)	(0.0235)	(0.0237)
Polity IV ijt	1.185***	_____	_____	_____
	(0.015)			
Polity IV_Demo ijt	_____	-0.115	-0.115	_____
		(0.473)	(0.473)	
Polity IV_Mixed ijt	_____	0.349**	0.349**	_____
		(0.055)	(0.055)	
Polity IV_Autoc ijt	_____	-1.158*	-1.16*	_____
		(0.166)	(0.166)	
Trade_free ijt	_____	_____	0.632**	_____
			(0.074)	
Trade_mfree ijt	_____	_____	0.559**	_____
			(0.084)	
Trade_unfree ijt	_____	_____	-0.540**	_____
			(0.056)	_____
AMU ijt	_____	_____	_____	0.197
				(0.349)
PAFTA_17 ijt	_____	_____	_____	1.126**
				(0.094)
GCC ijt	_____	_____	_____	-0.450
				(0.350)
Agadir_4 ijt	_____	_____	_____	0.530**
				(0.083)
Constant	-18.05***	-9.512***	-8.589***	-9.692***
	(0.603)	(3.548)	(4.681)	(3.514)
Country i Fixed Effects	Yes	Yes	Yes	Yes
Country j Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Observations	13,678	13,678	13,678	13,678
R-squared	0.671	0.662	0.574	0.536

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Own's Elaboration derived from output results of the Gravity models

2.4.7 Results of Augmented variables of Gravity Model from Scenario 1 – 4:

Scenario 1 in Table 2.6 we introduced the **Polity IV** variable for MENA region and it yielded a positive coefficient at highly significant levels with a one point increase up towards more democratic regimes leading to a factor of 2.3 increase in MENA's intra-trade and those results remain to be in consistency with some of the results driven by Gassebner and Lassmann (2008) and Qureshi (2009) and Almargo (2015) for the Polity IV variable. They all detected significant coefficients for this dummy, when they estimated bilateral trade flows intensity and import and export variety for European Union members and Latin American countries. It is of prime importance to mention that none of the previous estimations including evidence by DUC et al (2008), did confirm that if both trading partners are characterized by being democratic and having similar regimes, they will necessarily trade more with each other.

Scenario 2 we presented a precise assessment regarding a robustness of the previous **Polity IV** results. It was done by means of decomposing the Polity IV index into three dummies (**Polity_Demo**, **Polity_Mixed** and **Polity_Autoc**.) motivated by the more recent literature approach used by Aidt and Gassenbner (2008); Qureshi (2009) and Zeynalov (2016). The Polity dummies were assigned according to the different threshold ranges given; based on the similarity or dissimilarity in governance regime between trading partners. The results supported by the literature in some instances were being ambiguous on whether two trading partners being more democratic, would certainly signify that they trade more with each other.

As for Table 2.6, **Polity_Demo** variable has not shown any significance and reversed to a negative sign for intra-MENA trade and equally true for **Polity_Autoc**. variable; where two MENA countries traded less with each other, when they both belonged to autocratic regimes. The estimations has shown that is not necessary that similar regimes in the case of Polity_demo will reduce trade costs and foster bilateral trade intensity, on the other hand, it was very evident that if two MENA trading partners were both following autocratic regimes, this will indeed increase trade barriers and would result in lower intra-regional trade flows by a factor of 2.2 [exp(-1.158)-1]. The Polity_mixed variable was the only highly significant variable among the three thresholds and thus indicated that trading between mixed regimes of MENA countries would raise intra-MENA trade by 42 percent [exp (0.349)-1] *100.

Scenario 3 Moves to adding the second set of **Trade Freeness variables** that are supposed to adjust more accurately in determining MENA's Intra-regional trade intensity in compatibility

with the results[69]obtained by Abedini and Péridy (2006) to account for trade restrictiveness and facilitation measures. The three variables representing trade freeness denoted as (**Trade_free**, **Trade_mfree** and **Trade_unfree**) maintained significance across most of the categories. When both MENA trading partners had trade_free, this fostered the region's trade by 88 percent, compared to 74 percent when both trading partners are mostly free and finally unfree partners in MENA suffered from a 71 percent decline in their intra-regional trade flow.

Table 2.7 of the appendix demonstrated an extra robustness check by showing that the interaction between Polity IV variables and Trade freeness variables will lead to the optimum and highly significant combination regime for bilateral pairs of MENA trading partners to increase trade between them. Accordingly, the interaction term exhibiting the highest significant coefficients were the ones crossing between mixed regimes and trade freeness between MENA countries and they increased MENA's intra-regional trade flows by 104 percent at [exp (0.715)-1]*100. As well democratic countries that had witnessed trade freeness managed to increase the intra-MENA trade flows by 79 percent [exp (0.587)-1] *100. Accordingly, key results driven from these findings, illustrate that regardless of the similarity between two MENA countries governance regime, yet to reach higher intra-regional trade intensity, both partners need to be harmonized on the level of trade freeness indicators to be able to trade more. It is evident from the coefficient of the interaction term for Demo_unfree at high significance with a factor of 5.1[exp (-1.6234)-1] *100, that it directly undermined intra-MENA trade. intensity.

Scenario 4: This last scenario was used as a robustness check to fully assess the MENA's intra-regional trade intensity. In this scenario, we classified the region into four dummies as a proxy to account for the its sub-initiatives**.** This classification was contemplated in various forms by the literature, however our analysis included the whole comprehensive set of intra regional agreements to be able to detect which contributed the most to MENA's trade intensity. First starting with **PAFTA's** results from Table 2.6 which came at high and significant coefficients, contributing to the region's trade flows and which gave a sign pro-intuitive to that motivated by the literature and the significance was counterintuitive to our findings. (Bhattacharya and Wolde, 2010; Carrére and Gourdan and Olarreaga, 2012; Carrére et al, 2012; Hoekman 2013)

Then Agadir dummy showing pronounced effects at a highly significant coefficient and increasing intra-trade flow between MENA countries at 71 percent and it matched empirical

[69] The free variable derived by Abedini and Péridy (2006) is composite index taking into account mean tariff rates, revenue from taxes to trade, regulatory barriers to trade on actual /expected trade values.

estimations regarding Agadir Agreement's dummy previously illustrated by Gylfason and Martinez-Zarzoso and Wijkman (2015). As for GCC dummy results had shown lower non - significant coefficients, which were not strongly robust with the main stream literature based on Dogruel and Tecke (2010); stating that GCC as oil-rich countries show complementarity between their export composition and basket of goods. The dummy still partially increased the region's trade at a lower multiplier and percentage of 10 percent [exp (0.333)]. We suggest that the diminished share of GCC group in the significance of the results could be explained by the contextual framework of this model which included only merchandise trade and excluded oil flows. The AMU dummy, similar to other previous estimations did not turn to show high significance and contribute much to intra- regional trade flows in MENA.

2.5 Possible econometric problems and limitations of the model:

Most of the econometric problems for this model were treated during the estimations such as making sure the PPML estimator deals with zero trade flows; especially for a dataset of 20 percent zero flows and at the same time to provide consistent estimates that are controlled for heteroscedasticity. One of the benefits of PPML estimator is maintaining its robustness even when fixed effects by origin and destination are applied, that are very much needed as well in models with countries suffering a loss of observations such as for MENA region. As well multicollinearity arising between dummies was detected between GAFTA and PAFTA dummies; which was corrected for when GAFTA dummy was removed and automatically then PAFTA significance increased. Other econometric problems could arise from the literature relating trade and democracy, precisely for the endogeneity problem (Aidt and Gassenbner, 2008). The endogeneity problem could be partially resolved for by introducing lags of a variable; as previously done by Karam and Zaki (2015). Taking the lag of the polity IV variable to determine its effects on intra-regional trade would resolve the problem and in line with the same model estimations, the lagged value of polity IV MENA dummy was introduced and the results indicated that lagged dummy is persistent and retains a positive significant coefficient but smaller in magnitude. This robustness estimation does not necessarily confirm that the endogeneity problem is fully resolved for. The endogeneity problem is only effectively treated with the use of instrumental variables; which are correlated to the dependent variable but not to the error term (Bacchetta et al, 2012). It is sometimes challenging to use the right, viable and strong instrument in modelling endogeneity, specifically for this literature realm measuring impact of regime and governance on trade intensity. Accordingly, it is behind the scope of this work to use instrumental variables and it could present an opportunity for a future extensive research agenda to be conducted on this topic for the MENA

Table 2.7: Showing Interaction between Polity IV and Trade Freeness Variables:

Variables	Scenario1 PPML Trade	Interaction terms Trade Trade Freeness Polity IV
lnGDP_i	0.755***	0.516***
	(0.156)	(0.131)
lnGDP_j	0.242**	0.855***
	(0.108)	(0.069)
lnDistw ij	-0.712***	-0.837***
	(0.039)	(0.144)
Border ij	0.391	0.245
	(0.269)	(0.329)
Language ij	1.123***	1.123***
	(0.032)	(0.032)
Colony ij	0.377*	0.392*
	(0.198)	(0.128)
Current Colony	1.345***	1.345***
	(0.156)	(0.156)
Bothin WTO ij	0.977*	1.295*
	(0.058)	(0.083)
GSP ij	-0.252**	0.0684
	(0.094)	(0.330)
conflict_1 ijt	-0.0268	_____
	(0.397)	
conflict_2 ijt	-0.565	_____
	(0.440)	
crisis_1 ijt	-0.361***	_____
	(0.117)	
crisis_2 ijt	-0.680***	_____
	(0.123)	
rta_E.U. ijt	0.125***	_____
	(0.0235)	
Polity IV ijt	1.185***	_____
	(0.015)	
Demo_free ijt	_____	0.587**
		(0.078)
Demo_mfree ijt	_____	-0.253
		(0.770)
Demo_unfree ijt	_____	-1.634***
		(0.330)
Mixed_free ijt	_____	0.715**
		(0.346)
Mixed_mfree ijt	_____	0.130**
		(0.076)
Autoc_free ijt	_____	-0.12
		(0.182)
Autoc_mfree ijt	_____	-0.164
		(0.104)
Autoc_unfree ijt	_____	-0.415
		(0.325)
Constant	-18.05***	-9.692***
	(0.603)	(3.514)
Country I Fixed Effects	Yes	Yes
Country j Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Observations	13,678	13,678
R-squared	0.671	0.587

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Own's Elaboration derived from output results of the Gravity model

2.6. Remarkable Results driving to Policy Implications:

Political and economic diversity and heterogeneity across countries of the MENA region has introduced difficulties and challenges to the fully harmonized integration vision of its countries, needless to mention that successive wars, conflicts, upheavals and economic turbulences the region suffered from, made it 10 times harder for this integration vision to be accomplished until now. It is however justified through the findings of this chapter that sometimes the diversity in governance regimes and heterogeneity across the region could be a blessing rather than a curse to fostering intra-regional trade intensity between its members. In this work, we are not contradicting the fact that the transformation of MENA's governance and regimes from autocratic to democratic will reduce trade costs and lead to higher trade intensity between MENA trading partners. The main finding is that MENA's intra-regional trade flows are not necessarily higher, when both trading partners in the Region are democratic countries.

First, it was important to lay the foundation of intra-regional trade flows showing to what extent the gravity equation performs well for MENA countries, obtaining consistent results for the standard variables across all scenarios 1, 2, 3 and 4. As for the augmented gravity variables, we had shown that when Polity IV variable was introduced to capture MENA's intra-regional trade, it increased intra-regional trade intensity by a factor of 3.2. This result emanates only from considering one threshold value for the Polity IV variable and not when we determine if there is similarity between governance and trade regimes of both trading partners in MENA. In order to account for this, the three dummy variables Polity_Demo, Polity_Mixed and Polity_Autoc were included and as well trade freeness measures to address aspects of trade facilitation and capture tariff, non-tariff and technical barriers to trade regimes and their harmonization across MENA countries.

Under all circumstances, it was proven through the results that similarity between governance of both trading partners especially for Polity_Demo variable, does not necessarily guarantee in absolute terms higher intra-regional trade intensity between MENA countries and this same result was motivated by Duc and Lavallée and Siroën (2008) for other regions. On the other hand, mixed regimes were more useful based on our estimations to prove higher intra-MENA trade flows. As well a very remarkable result we obtained was addressing the significance of trade freeness dummy variable with all its categories in affecting MENA intra-regional flows, either for democratic or mixed country regimes. That's why results asserted that capturing both together Polity_IV and Trade Freeness dummy variables together, their combined impact on intra_MENA trade flows will reach a 104 percent increase. Significant results were also robust for PAFTA and Agadir dummies contributing to most of MENA's intra-regional

merchandise trade and at same time they represent countries of mixed regimes and are not all democratic. Finally, the work could draw on two essential dimensions of policy implications that should be worked on to achieve higher intra-regional trade flows for MENA countries in the future and they are the following:

1) Implementing a wide range of political reform policies across the region to improve MENA's governance and serve the region's specific trade regime, policy needs and control for effective governance of institutions. This will create mutual understanding and agreement between MENA's trading partners. It is not evident that the region was not able to reach this stage of minimum reforms up till now due to the accentuated episodes of political events MENA suffered from and which still has not reflected on the full maturity of its governance and regimes. As empirical results had shown, it is not a necessity for both trading partners in MENA to belong to democratic regimes to be able to negotiate on mutual understanding and agreement about trade policies and treaties, however, a certain degree of agreement (in case of mixed regimes) between partners would be certainly healthy to augment the region's trade intensity.

2) Although the border variable was not significant across all PPML estimations, yet the only estimation scenario 3, is when we accounted for trade freeness as a proxy to control for behind the border impediments to trade and this is when the variable became significant. This implied that controlling for trade restrictions either behind the border, technical or logistic are more pronounced and relevant to reducing the region's trade costs, magnifying border effect and boosting MENA's intra-regional trade intensity.

2.7 Conclusion

This chapter focused on revealing some of the dimensions, fostering MENA intra-regional trade intensity. It is true that historically the episodes of conflicts and crisis impeded the region's progress, besides the slow change in the region's autocratic governance regimes had its implications in preventing the proliferation of MENA's integration efforts. It caused the deficiency in governance and lack of coordination and harmony between legal aspects and regulations of trade agreements between its counties and this in turn increased trading barriers and costs. Accordingly, this Chapter's main contribution was to show that through controlling for the deficiency in governance of executive regimes across all governing institutions coupled with considering aspects of trade restrictiveness and facilitation of trade policies all together will lead to a considerable increase in MENA's intra-regional trade flows.

The empirical methodology was conducted via a classical Trade Gravity Model measuring intra-regional trade flow intensity for MENA countries. The baseline scenario summarized the standard gravity model independent variables indicative of economic size, distance used as a proxy to control for trade obstacles, in addition to augmented variables, as a set of cultural, historical and language affinities, regional trade area dummy, conflict and crisis dummies to grasp the region's sequence of political incidences. In addition to the gravity's classical variables, 4 different scenarios were iterated, three of which involved the inclusion of Polity IV and trade freeness variables to be decomposed into 3 three thresholds each to account for the influence of governing and executive authorities on trade regimes and policies. Both variables covered aspects of executive and competitive constraints placed on governing bodies and regimes and in addition it considered trade facilitation schemes and existing bottlenecks of trade procedures across the region's countries. The fourth scenario was used as a robustness to inspect which of MENA's Intra-regional initiatives contributed more to its trade intensity. The common estimation approach used across all scenarios has been the PPML to treat for Heteroskedasticity and zero trade flows. The model's empirical evidence has shown that transformation of MENA countries institutions from autocracies to mixed and democratic regimes, led to greater effectiveness and vigour in their governing institutions and in spreading more understanding between trading partners; which will eventually increase intensity of trade flows between them. This does not however guarantee that similarity of regimes between MENA trading partners, would always result in higher trade intensity between the Region's countries, however, on the contrary trade between MENA countries of mixed regimes and a certain degree of freeness from trade non-tariff, procedural and technical barriers will reflect significantly well on intra-MENA trade. As well this fact was verified once again by the significance of intra-regional trade of smaller sub-initiatives such as PAFTA or Agadir countries whom do not all belong to the same governance regime, but have worked on different schedules and schemes to harmonize their tariffs, non-tariff and technical barriers to trade.

From all the underlying gravity estimations and scenarios, this work draws on several important points: first, the continuous improvement in the quality of governance and self-regulated process implemented by governing executives and authorities away from pressure and interest groups will help them negotiate in an unbiased manner terms of trade that increase mutual understanding and benefits for both partners and in parallel increase trade flows on an intra-regional level. Second attempting to eliminate unnecessary bureaucratic behind the border and technical impediments to trade will certainly accelerate trade intensity in the region. Finally, fostering some of the promising smaller sub initiatives in region like Agadir association agreement, and PAFTA could offer opportunities to expand the region's

merchandise trade and work on increasing trade complementarity between MENA countries and trade in higher value added as will be discovered through our next chapter analysing sector specific trade flows for the Agadir Agreement countries with the E.U.

At this point, we cannot confirm whether regime similarities might provoke higher trade intensities between MENA countries and (RoW), to confirm robustness of results for intra-MENA trade intensities based on regime similarities. Let's say, we can find, that MENA members which belong to mixed regimes can trade more intensively with E.U. countries, meanwhile, Gulf MENA countries that are more towards the autocracy scale, will trade more with autocratic countries from the (RoW). This conclusion could suggest future channels of research to investigate this topic at higher accuracy and obtain the impact of governance and regimes on MENA countries trade intensities when trading with (RoW) countries. Another prospect for future research lines driven from this chapter, will be Border Effect for MENA countries and their impact on intra-MENA trade intensities, given that all MENA countries remain to be under ongoing tensions and which might differentiate between two groups of good and bad trading neighbours in the region.

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CHAPTER 3:
3.1 What Happens to Trade Flows of Small Association Agreements when RoO are relaxed?

Chapter 3: What Happens to Trade Flow when Rules of Origin are relaxed?

Chapter 3: What Happens to Trade Flows when Rules of Origin are relaxed? An empirical Analysis Using Sector Specific Flows between Agadir_4 and the E.U

3.1 Introduction

Rules of Origin (RoO) are defined as the product's economic passport and its ability to acquire '**Originating Status**[70]'; given that the product is wholly grown, or extracted from a certain country and not originating from outside its **'Preferential Trade Agreements' PTA**[71]. In a nutshell RoO could be classified based on Steafano (2009) and European Commission handbook on RoO (2014) into two broad categories: '**Product specific RoO**' and '**Regime wide RoO**'[72]. The more flexibility is introduced to a product's RoO, the less will be the originating status restrictions and more value-added content will be allowed from outside the trading partners. On the other side regime RoO work to harmonize and unify trading schemes between countries to facilitate mutual trading.

At first impression RoOs appear to be simple, however understanding the implementation of RoO is a tedious task for both exporters and researchers and equally complex appears to be measuring their overall impact on trade flows. Trade and economic welfare gains derived from applying RoO in the literature has been controversial between some of the streamline literature being in favour of economic and regulatory benefits of RoO, as in the case of Krueger (1993); Krishna and Kruegar (1995); Falvey and Reed (2000); Estevadeordal and Suominen (2005) and Feré (2009). The counter arguments elaborated by Kruegar (1993); Duttagupta and Panagariya (2003); Chase (2008) and Estevadoerdal, Harris and Suominen (2007) emphasized the additional costs and trade distortions caused by applying RoO of conflicting regimes.

Around 50 countries of the E.U and their affiliated Free Trade agreements with the Baltic, CEFTA, EFTA, South Mediterranean, Mexico and Chile started applying '**Pan-Euro Diagonal RoO**

[70] Origin's Protocol Conditions: The product has to obtain "originating status"; thus under-going certain amount of working or processing within its same preferential trading area. Each product depending on its nature and production process and value added has a different working or processing % (in most cases with an average between 40 to 60%), in order to confer origin to the PTA (User's Hand book of Rules of Preferential Origin used in trade between E.C and European countries).

[71] Preferential Trade Agreements: unilateral trade preferences provided by developed countries granting preferential tariff to imports from developing countries such as Generalized System of Preferences.

[72] Regime Wide RoO: Additional RoO provisions applied across the world PTA's such as: PANEURO, E.U_South Africa, E.U-Mexico, E.U-Chile, EFTA_Mexico, NAFTA, U.S-Chile, G3, Mexico-Costa Rica, Mexico-Chile, Mexico-Bolivia, Canada_Chile, CACM-Chile , CACM, Mercosur, Mercosur-Chile, Mercosur-Bolivia, Caricom, ANZCERTA, SAFTA, SPARTECA, AFTA, Bangkok, Japan-Singapore, U.S-Singapore, Chile-Korea, COMESA, ECOWAS, ASEAN, SADC, GCC, U.S-Jordan, U.S-Israel, Canada-Israel , Mexico-Israel (Cadot , De Melo and Estevadoerdal and Eisenmann and Tumurchurdur 2002).

Cumulating System' [73] known by (PECS) since 1997. The permissiveness of Pan-Euro diagonal RoO, allows its participants to source up to 40 percent of their product's inputs from trading partners that are outside their PTA with E.U. According to Augier et al. (2007), this will cause the rupture of the**' Hub-Spoke Structure' [74]** between E.U, as hub countries to the south Mediterranean spoke countries. The amplification of trading partners base from where diagonal RoO applicants can obtain their inputs efficiently at a lower cost, will encourage higher intensity of trade flow between spoke countries and 'Rest of the World[75] (RoW). One of the good candidate agreements on which the Hub - Spoke structure with E.U. applies will be the '**Agadir Association Agreement**'[76]. In parallel one of the agreement's boldly highlighted objectives is to apply sector and product specific diagonal RoO, in attempts to increase trade flows between Agadir countries and E.U. members and at same time increase Agadir_4 trade flows to (RoW).

In this context, the aim of this chapter is to shed light on the following issues: to what extent the Agadir Agreement has fostered intermediate and export flows between the EU and the 4 Agadir countries, once that we control for the evolution of trade to RoW. The next valid question will be regarding any remarkable variation in the spatial/sectoral structure of this trade, and to what extent has it been induced by the Agadir agreement itself or precisely after the adoption of the Pan-Euro diagonal RoO scheme? As it has been observed in other regions, can we certify that lowering the percentage of domestic value content threshold in favor of a product to be considered as an originated product, has

[73] PANEURO RoO: it is that term used to describe the diagonal cumulation system in operation between the European Community and several European countries. The following member countries are operating under the Pan-Euro cumulation system and they are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland ,Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, United Kingdom, Bulgaria, the Czech Republic, Estonia, Iceland, Hungary, Latvia, Liechtenstein, Lithuania, Norway, Poland, Romania, the Slovak Republic, Slovenia, Switzerland and Turkey, south Mediterranean countries Tunisia, Syria, Morocco, Egypt, Jordan and other international countries. (User's Hand book of Rules of Preferential Origin used in trade between E.C and European countries)

[74] Hub Spoke Structure: The spatial structure created between a group of countries that are members of a trade agreement; where hub countries are central to the trading flows and they receive the highest intensities, meanwhile, spokes as peripheries don't have the same trade intensity as hubs.

[75] RoW Trade reorientation: When a spoke country B is engaged in membership of PTA with E.U, under the diagonal RoO cumulation system, it is allowed to source out on average percentage depending on the nature of the product 40% of its inputs from outside the PTA at more efficient lower costs than expensive imports supplied from member countries within the PTA and this results in trade re-orientation towards rest of the world (Augier and Gasoriek and Lai Tong 2007).

[76] Agadir Agreement countries: sub-regional initiative under the umbrella of Euro-Mediterranean Association Agreements between 27 European Union and 9[76] south Mediterranean countries. It includes 2 Arab Mashreq countries (Egypt and Jordan) and two Arab Maghreb countries (Morocco and Tunisia). The agreement was originally signed during 2004, ratified and entered into force during 2006. All together of Agadir members constituted an integrated market potential of over 120 million inhabitants and with a combined GDP of nearly 200 billion euros during 2005

reduced the intensity of trade flows for intermediate products (parts and components) flowing from ROW directly to Europe and increased the ones entering through the 4 Agadir countries? With the aim of answering some of those questions, in this chapter we developed several alternative impact evaluation approaches and in addition to the use of a rich dataset which includes exports and intermediate sector specific flows[77] between Agadir 4 and the E.U. collected from CEPII Gravity dataset and (Trade Prod.) for final and intermediate export flows and 'Regional Value Content' is derived from 'Agadir Technical Unit' Report 2010.

The Chapter's main methodological approach used is a twofold one: First a '**Hierarchal Cluster Analysis**' was conducted to investigate sector specific final and intermediate exports showing a certain degree of linkage between their flows and Regional Value Content from Agadir_4 to E.U.; especially after adoption of diagonal Pan-Euro RoO. Preliminary cluster analysis resulted in three main subgroupings of sectors based on export flows on top of which: **Cluster 1 for Petrochemical related industries**, **Cluster 2 belonging to consumer non- durable goods** and finally **Cluster 3 of heavy duty machinery and spare parts**. Second step continues by taking final and intermediate flows resulting from the three clusters to be subject to treatment with Pan-Euro Diagonal Rules of origin through '**The Double Differences Approach Estimation Panels[78]**' (DID). All Countries adopting the Pan-Euro RoO were denoted by the treatment group I for all Pan-Euro RoO applicants. Besides a smaller treatment group II, estimating final and intermediate flows only between Agadir 4 countries and E.U. 26, when exposed to Pan-Euro diagonal RoO and for robustness purposes, two control groups were introduced.

This chapter's methodological contribution lies in combining bilateral trade gravity model considered as one of the workhorses in empirical analysis of international trade flows for Agadir Association agreement's exports to the E. U. (i.e Silva & Silvana, 2006; Chaney, 2008; Helpman et al., 2008; Head and Mayer, 2013) and at the same time, introducing treatment with Pan- Euro RoO through impact evaluation instruments of the DID approach. Both methodologies have been used previously to capture

[77] Exports Flows: represents the value of exports of a reported exporter country with an iso country code to an importer iso country (cepii data set definition Trade_cepii8004.dta)

Intermediate flows: the represent the portion of exports flowing from Agadir_4 to E.U. to be used to produce final or finished products. These goods are sold between industries in countries for resale or for production of other goods such as rubber products. (CEPII gravity and TradProd. Data set,2009; ATU, report 2010)

[78] Difference in Difference Estimation: This estimation method identifies a specific intervention policy to which two comparative groups are selected; where group one known as treatment group is exposed to the policy and the other known as control is not subject to the policy, then the difference in outcomes for those comparative groups will show whether the policy has succeeded in accomplishing it objectives or not (Bertrand and Duflo and Mullainathan 2003)

RoO's impact on trade flows for other regions by (i.e. Cadot et al., 2002; Duttagupta and Panagariya, 2003; Estevadeordal and Suominen, 2004; Gretton and Gali, 2005; Augier and Gasiorek and Lai-Tong, 2007 Gasiorek, 2008; Kelleher, 2012) but to our knowledge, not specifically targeting the impact of Pan-Euro RoO on small association agreements such as the Agadir Agreement. The main estimator used throughout the chapter is Silva and Tenreyro's (2006) Poisson Pseudo Maximum Likelihood (PPML); due to its capacity of resolving heterodeskedacity problems and treatment of the zero-inflated bilateral trade flows between country pairs. Note that our models are fed with sector specific flows, which amplifies the number of zero flows.

The interaction term known as $(\beta_{10}^{k} DP_{ij})$ is a variable combining treatment with diagonal RoO and time of treatment. Based on the results of the interaction coefficients of the gravity model and using DID approach of treatment to account for diagonal Pan-Euro RoO, 11 and 8 sectors out of 12 sectors for exports and intermediate flows between Agadir countries and E.U. were highly significant. Besides the treatment with diagonal RoO which contributed to fostering of Agadir's_4 final and intermediate exports to the E.U._26 on average by 157 percent and 186 percent respectively and in the emergence of a different structure and composition for final and intermediate flows between both partners to include the following sectors (industrial chemicals, other chemicals, transport equipment spare parts, food products, machinery and medical spare parts)

The chapter starts with a section 2 theoretical framework and evidence from the Literature on the Impact of RoO Regime on Trade Flows. Section 3 Descriptive data on Agadir_4 to E.U and Cluster analysis. Then section 4 introduces the bilateral sector specific Gravity Model estimations. Section 5 Treatment with Pan-Euro diagonal RoO through Policy impact of DID approach. Finally, section 7 provides a discussion across all estimations and results and the conclusion.

3.2 Evidence from the Literature on the Impact of RoO Regime on Trade Flows

3.2.1 Main Stream argument about Adopting RoO

The controversy around the restrictiveness versus the flexibility of RoO arises from two main argumentative directions; one in favor of the trade liberalization benefits, '**Trade Creation**

Effects'[79],'**Multilateral Openness**'[80]evident when regime wide RoO's are implemented. This view has been widely supported by the theoretical literature, highlighting the role of Pan-Euro diagonal RoO cumulation as a trade harmonizing tool. Starting back by Krueger (1993) and Krishna and Kruegar (1995) both shedding light on RoO as an instrument used in protecting exporters against dumping; especially in low tariff countries. Later, during the early 2000's, Falvey and Reed (2000) advocated RoO as the natural commercial instrument offsetting the '**Optimal Tariff**'[81] taken from importers and encouraging them in return to abide by RoO regimes through the less costly '**De-minimis Provisions**'[82]; known by the unified regime wide RoO provisions. As for Estevadeordal and Suominen (2005), they advocated multilateral harmonized RoO regimes and they had proven that through investigating discrepancies and similarities across RoO regimes worldwide; relaxing Pan-Euro RoO, revealed a positive advantage for trade between E.U. and its trading partners from Balkan and Mediterranean countries. Accordingly, this caused the rupture of the normal hub-spoke relation between northern and southern countries and re-oriented flows to new hubs of Arab Southern Mediterranean countries. At the meantime, Augier and Gasiorek and Lai-Tang (2007) laid the foundation for a standardized Pan-Euro RoO system to be implemented across all north and south European and Mediterranean countries and they investigated how Pan-Euro diagonal RoO unified and minimized extra costs of conflicting RoO bound to different PTAs'.

On the other hand, the opposing argument set by Kruegar (1993) and Duttagupta and Panagariya (2003) and Chase (2008) and Estevadoerdal, Harris and Suominen (2007), identified RoOs' as a trade discriminatory and protectionist device limiting trade liberalization benefits from disseminating to all trading partners. Krueger (1993) was the first to draw attention to the dubious nature of RoO; given they worked well as a natural anti-dumping tool; however, she also indicated to the economic inefficiencies that they might cause in free areas; due to their resemblance to custom duties. Duttagupta and Panagariya (2003) and Chase (2008) attempted to clarify the political economy dimension behind the use of product specific RoOs and how it might restrict competition in front of intermediate

[79] Trade flow creation: this concept indicates how non-restrictive RoO averse trade distortion and inefficiencies caused from Hub-Spoke structure and recreates trade flow between Spoke-Spoke countries; where they are able to source out more intermediates between themselves and from RoW, instead of supplying higher priced intermediates only from same PTA members (Gasiorek and Augier and Lai-Tong 2007

[80] Multilateral openness: the state of moving towards multilateralism between countries when less restrictive and a unified system of Rules of origin such as regime wide provision as diagonal and full RoO cumulation are applied between PTA(Hansen 1996; Estevadoerdal, Harris and Suminen 2007)

[81] Optimal Tariff: It is a discriminatory type of tariff set by policy makers depending on the product and its aim is to maximize importer's welfare gains (Falvey and Reed 2000).

[82] De-Minimis provision: allowing the use of maximum % of non-originating materials without affecting origin (User's Hand book of Rules of Preferential Origin used in trade between E.C and European countries)

exporters and importers; especially for the protection of domestic and interest groups involved in RoO settings. Equally true El-Megharbel (2006) and Estevadoerdal, Harris and Suminen (2007), elaborated on differences between RoO regimes around the world that might cause trade distortive effects across regions. Accordingly, they proposed harmonized multilateral RoO system to be one remedy; aiming to reduce frictions across different RoO's regimes. Many other views attributed the existence of confusion and contradictions between RoO associated to different PTAs within the same region, which makes it much more challenging and costly for a region to adopt different RoO protocols (Harou, 2007). This might leave smaller association agreements such as Agadir Agreement countries facing more challenges into implementing several bilateral RoO in harmony with U.S and other RoW countries and in parallel assuming diagonal Pan-Euro RoO with European and PAFTA countries.

3.2.2 Empirical Literature Review on RoO Assessment:

To the best of our knowledge, few empirical studies (see Table 3.16 of the appendix of this chapter for the literature review) have been conducted studies to capture the impact of regime-wide RoO protocols on trade. The reason is how tedious it is to collect the accurate information on bilateral sector and product specific trade flows, origin, production process, Regional and local value content, percentages of intermediates and value added determining a product. One of the original empirical work in this literature realm was developed by Kruegar (2003), who assessed NAFTA's product specific RoO through analysis of the aggregate trade flows between Mexico and Canada; assigning '**Utilization Rates**[83]' across industries. This indicator will show how much exporters preferred RoO product specific regimes rather than applying 'Most Favored Nation' (MFN) tariff rate MFN[84] . During 2000's the real progress for empirical investigation started when trade gravity models were used to estimate RoO and measure their impact. One of the early investigations were elaborated by Estevadeordal and Suominen (2004), when they adopted an '**Augmented Gravity Equation**[85]' with the addition of an average '**Restrictiveness Categorical RoO Index**[86]'for all product categories; to

[83] Utilization Rates: It is an indicator equivalent to a tax rate in percentage signaling that higher is this rate, the more prone are exporters and importers to join RTA agreements and apply their associated RoO regimes rather than being subject to MFN tariff rate. This rate depends on the product classification and weighing out of cost of compliance to RoO regimes and MFN tariff rate.

[85] Augmented Gravity Equation: Augmenting extra variables to a classical gravity equation measuring trade flows, in order to capture the impact of applying sector specific RoO on final and intermediate trade flows and therefore it is necessary to have in the model additional variables to estimate RoO compliance. (Estevadeordal and Suminen 2004).

[86] Estevadeordal (2000) average RoO restrictive index: represents a categorical index ranging from 1 given for least restrictive RoO regimes such as Asian ones and 7 given to the most restrictive RoO as an example will be the NAFTA's RoO. The index measures the degree of restrictiveness of a product's RoO' which is determined in ascending order of restrictiveness as follows: change in product's chapter, change in a product's heading within a chapter and change in a product's sub-heading, change in tariff classification and least is change in value content criterion (Estevadeordal et. Al. 2000)

capture heterogeneity across different product specific RoO regimes. Their analysis was a milestone in the RoO literature which determined the exporters' ability to comply with sector and product specific RoO for final and intermediate trade flows. Although the empirical literature on modelling RoO is still in its infant phase, yet more recently new approaches of policy impact evaluation such as '**Propensity Score Matching'** [87] (PSM) has been modelled and combined with trade gravity estimations. The impact evaluation approaches gained popularity in evaluating the vigor of certain policies, such as entrance and membership in currency unions and on a more limited scale has analyzed the adoption of RoO provisions on trade flows for regimes of European countries (Kheir El Din and Gohenim, 2005; Cadot and Melo, 2007; FEMISE[vii] Research Centre, 2007; Chintrakarn, 2008; Imben and Wooldridge, 2009; Millimet and Tchernis, 2009; Jurše and Logoižar and Vide,2010; Gauto, 2012).

Another important landmark in modelling RoO regimes and their **'Ex.post Effect'**[88]on trade flows was developed by Augier Gasoriek and Lai-Tong (2004) to capture the impact of regime wide diagonal Pan-Euro RoO on bilateral trade flows of manufactures and intermediates within the European, Baltic, CEFTA and south Mediterranean. Their remarkable results indicated that missing out on the application of diagonal RoO, led to a 47 percent underestimation in intermediates trade flows on average between 1995 and 1999. Finally, a considerable amount of the empirical literature examined RoO through general equilibrium models and the introduction of weighted indices. These indices estimated components of product specific and regime wide RoO on bilateral sector specific flows through gravity models capturing RoO provisions and only a few focused-on panel estimations through using Double Differences approaches. (i.e.: Cadot et al., 2002; Duttagupta and Panagariya, 2003; Estevadeordal and Suominen, 2004; Gretton and Gali, 2005; El- Megharbel, 2006; Augier et al., 2007 Harris, 2007; Gasiorek, 2008; Kelleher, 2012).

3.3 Theoretical Framework of Modelling Pan-Euro RoO and Model's Descriptive Data

3.3.1 Technicalities about Pan-Euro RoO Cumulation System (PECS)

Pan-Euro diagonal RoO came into action in 1997 and they always aimed at harmonizing RoO regimes across countries. As illustrated in Table 3.1, this system included 15 original European Economic Area countries, EFTA countries[89], Central European countries and the Baltic States and 9 Mediterranean

[87] Propensity Score Matching: matching of treated individuals with their nearest neighbour controls by using the appropriate matching conditioning characteristics common between the two groups (Diamonds 2006)

[88] Ex.post effect: It measures the actual impacts accrued by the beneficiaries that are attributable to program intervention and there are many such programs and approaches as Double differences , Propensity score matching and treatment effects models developed by Heckman and Vytlactil (2005)

[89] EFTA: European Free Trade Association

countries. Later-on during 1999, many other RoW[90] countries became members of the Pan-Euro cumulation system and it was amplified to a total of 38 member countries. Finally, during 2001, the total number of members adopting Pan-Euro diagonal RoO schemes reached 50 countries world-wide. Any product that has obtained originating status in the above -mentioned countries will be recognized and given a certificate of movement known as (Euro1 or Euro-Med).

Rules of Origin (RoO) follows the standard product specific Rules and Regime wide harmonizing Rules. Product Pan-Euro specific RoO are stricter and need conformity by specific criteria: i) Change in the **'Tariff Classification'** of a sector (CTC[91]) ii) Change in product's '**Value Added Content**' (RVC)[92]; iii) **'Technical Requirement Criteria'** (TECH); defined as the substantial change in a product's chemical or physical composition allowed for changing origin. On the other hand, regime-wide RoO are supplementary provisions introduced to harmonize and ease discrepancies across all RoO regimes and this is what exactly our gravity equation and treatment approaches will be interested to model. Usually regime RoO follow three **'Types of Cumulation Schemes'**[93]; which describe the system of acquiring origin through bilateral, diagonal or full cumulation system (Steafano, 2009; European Commission, 2014). The virtue of Pan-Euro diagonal RoO lies in its flexibility to allow

[90] RoW: The rest of the world here is meant all other world countries except for 30 E.U countries in the model , among which are also the 4_agadir countries excluding intra_agadir trade statistics

[91] Change in Tariff Classification (User's Hand Book to the Rules of Preferential Origin Eurostat).

[91] CTC: Change in tariff classification system based on the "Harmonized Commodity Description and Coding System" and classified into 97 tariff chapter inclusive of sectors and products. The product's tariff class, duties, charges, equivalent charges, preferences, quotas and ceilings could be determined based on this classification. Two products under the same sector but belonging to different chapters will be subject to different tariff rates, while, normally when a product is under the same heading or sub-headings, its tariff category does not necessarily change (User's Hand book of Rules of Preferential Origin used in trade between E.C and European countries)

[92] Change in Regional Value Content: it signals to percentage of processing or value added in a product which originates from outside the preferential origin area for a PTA. For Pan-Euro RoO it ranges from 40% to a maximum of 60% in this range for the majority of products. (User's Hand book of Rules of Preferential Origin used in trade between E.C and European countries)

[93] Bilateral RoO cumulation: RoO provision system which constraints the use of material and components originating of a product only to countries belonging to the same regional trade area and does not allow processing from outside the RTA (User's Hand Book to the Rules of Preferential Origin Eurostat)

Diagonal cumulation: Diagonal Rules of Origin Cumulation System: If we have three countries A, B and C and they have agreements with each other and each operating identical rules of origin, in this case they are allowed to process some non-originating materials from other countries, under certain conditions

Full Rules of Origin Cumulation System: Involves a higher degree of integration within the context of Pan-European cumulation origin rules, and it is only existent between the European Economic Area members

inputs to be accumulated from outside the E.U. countries, given that Pan-Euro diagonal RoO countries have already signed prior bilateral or preferential trade agreements with other (RoW) countries. This certainly relaxes RoO opening the door in-front of efficiently sourced inputs and intermediates from countries outside the Pan-Euro compliance area. The only condition imposed is a threshold set on the average intermediate constituent allowed to be sourced from outside the Pan-Euro cumulation area not to exceed more than 40 percent of the final good. (Eurostat, 2010; User's Hand book of Rules of Preferential Origin used in trade between E.C and European countries, 2011; Augier and Gasoriek and Lai, 2008)

Table 3.1: Timeline for Mediterranean Countries Joining in Pan-Euro Rules Origin Cumulation (PECS) during 1997

Original PECS_RoO Pariticipants	Cumulation Date	Other Countries	Diagonal PECS_RoO Cumulation Date
Austria	1997	United States	1999
Azerbaijan	1999	Chile	1999
Belgium	1997	China	1999
Cyprus	1999	Australia	1999
Denmark	1997	Canada	1999
Finland	1997	**EFTA**	**Diagonal PECS_RoO Cumulation Date**
Framce	1997	Swizerland	2006
Germany	1997	Iceland	2006
Greece	1997	Norway	2006
Georgia	1999	**Agadir Association Agreement**	**Diagonal PECS_RoO Cumulation Date**
Hungry	1999	EGYPT	2006
Portugal	1997	Jordan	2006
Poland	1997	Morocco	2005
Italy	1997	Tunisia	2006
Lativa	1999		
Netherland	1997	**Barcelona Process (Euromed partnership)**	**Diagonal PECS_RoO Cumulation Date**
Spain	1997	Algeria	2007 *
Slovekia	1999	Israel	2006
Slovenia	1999	Lebanon	No
Lativa	1999	West Bank and Gaza Strip	2009
		Syria	No

* For Algeria mean cumulation started only for few setors and was not fully applicable

Note: During 2013 based on the European Commission's general aspects of preferential origin and Pan-Euro Mediterranean Cumulation and PEM Convention, its members reached 50 countries.

Source: European Union Commission 2013

3.3.2 Stylized Facts about Agadir_4 Sector Specific Trade and Export Flows:

This analysis gives a comparative brief on the descriptive data and evolution of Agadir_4 countries[94] trade flow to RoW, Intra-Agadir and with E.U.; especially for export flows to E.U.; which will be part of the methodological approach. The analysis aims at showing to what extent the agreement has fostered trade between the EU and the 4 Agadir countries, once that we separate Agadir's 4 evolution of trade to the RoW. Although some of the European countries entered Pan-Euro diagonal RoO since 1997; as evident from Table 3.1, yet they did not start operating with diagonal RoO before year 1999

[94] The context meant by Agadir_4 countries here (Egypt, Jordan, Morocco and Tunisia)

(European Commission, 2013). Accordingly, our database will cover the same timeframe of data to be employed later in the gravity model from [2000: 2010]. The main motivation using sector specific final and intermediate export flows between Agadir 4 and E.U. was due to two reasons: first, the missing data on the level of sector specific imports from E.U. and presence of wide discrepancies between sector specific import data collected from the custom authorities and the reporting through the Agadir Technical Unit. Second, the absence of data relevant to the breakdown of import tariffs rates and '**Regional Value Content[95]'(RVC)** applied for imports. Accordingly, the estimations rely on Sector specific final exports and intermediate export flows from Agadir_4 to the E.U. for the analysis and gravity dataset

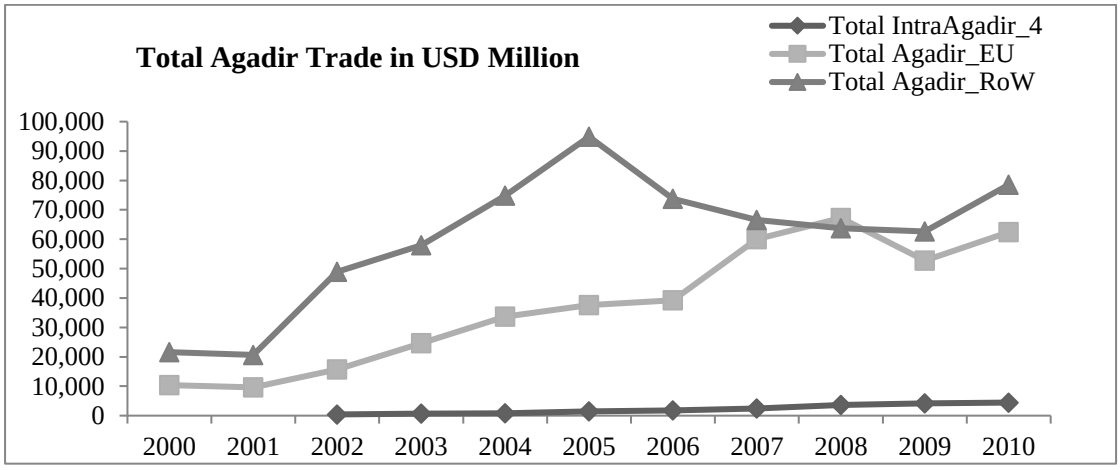
Regarding Figure 3.1 it is worth mentioning the reversal point observed in 2008 for Agadir-4 with E.U trade respect to Agadir_4 to RoW. Historically Agadir_4 to E.U.'s total trade precisely started to pick up and increase after the on-set of the agreement during 2005 and it witnessed more than a 50 percent upsurge between 2005 and 2008. This sudden increase coincided at the same time with the ratification and implementation of the Pan-Euro diagonal RoO on some of the sector's specific bilateral flows between Agadir_4 to E.U. The reason why Agadir_4 to E.U. trade started to fall again below Agadir_4 to (RoW's) trade one year later was due to the occurrence of the economic crisis of 2009, which hardly hit European countries and ultimately trade flows were re-directed from Agadir_4 to RoW partners; especially to Asian markets[96]. Agadir_4 to RoW trade has grown on average at 14 percent from 2003 to 2009, boasted by the entry of some member countries into several bilateral trade agreements with U.S [97]. After 2006 Agadir_4 to RoW's trade started to diminish by 5 percent and it rebound back in 2009.

[95] Regional Value content based on the percentage of processing or value added in a product which originates from outside the preferential origin area for a PTA. For Pan-Euro RoO it ranges from 40% to a maximum of 60% in this range for the majority of products. (User's Hand book of Rules of Preferential Origin used in trade between E.C and European countries and Agadir Technical unit statistics and database ,2010)

[96] Asian partners: The ASEAN area including: Brunei, Indonesia, Cambodia, Lao people republic, Myanmar, Malaysia, Philippines, Singapore, Thailand, Vietnam, China, and India. (Ayadi. Et al. 2009)

[97] Some of the Agadir agreement countries entered into several bilateral trade agreements with U.S chronologically as follows: Jordan during 1998 followed by Egypt in 2005

Figure 3.1: Total Aggregate Trade Flows for Intra_agadir_4 / Agadir_4 to RoW / Agadir_4 to E.U.



Source: Own's Elaboration based on the original source and Agadir Technical Unit Statistics 2010

Although Agadir_4 imports to E.U. will not be subject to treatment in the section of econometric data, yet it is worthy to mention that Agadir countries in general acted as net importers from RoW since 2002[98]. Over 60 percent of their final imports were concentrated in heavy duty Machinery, electronics, transport equipment and processed food products, meanwhile, their exports to RoW were concentrated in textiles, fabricated metals, Iron and steel, industrial and petrochemical paints, varnishes, furniture and processed food products. (Model's descriptive data [2000-2010]; ATU Statistics, 2009; Ayadi. et al, 2009; Eurostat trade database, 2010).

We can see from Figure 3.1, that although Intra Agadir_4 trade flow remained flat for long time, it started to grow at an average of 26.3 percent over 4 consecutive years since the agreement's inception during 2005. Consequently, intra-Agadir exports grew over its imports by 1.5 million USD during 2010, however, its exports composition was still confined to low value added primary and semi manufactured industries[99]and which involved increasing the complexity of products between Agadir-4 countries and the E.U., as in the case of the Automotive sector. In this case Tunisia specialized in safety seat belts for motor vehicles, Jordan provided radiators for motor vehicles and Egypt exported the brake system parts then all components combined and re-exported to E.U. countries. (Model's descriptive [2000 -2009]; Berbache, and De Cenival, 2008; ATU report, 2012)

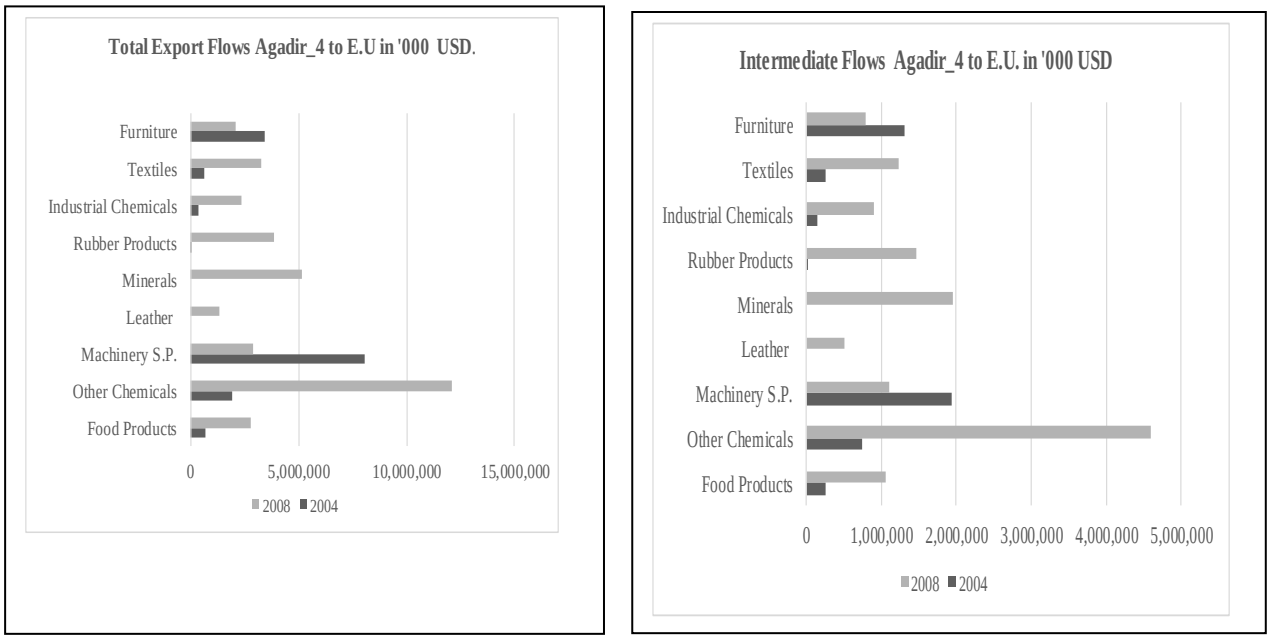
[98] Trade data for Agadir_4 with RoW: is only available post 2002, data scarcity problem in the region for aggregate and sector specific flows exists

[99] Feeding Industries for heavy machinery and transport equipment: Intra Agadir_4 has a 25 percent of exports in this category and 17 percent imports and it includes manufactures ship building, motor vehicles, motorcycles, bicycles, aircraft, railroad equipment. They represent 382, 383 and 384 for revision 2 ISIC code (Eurostats.un.org 2011;ATU 2009)

3.3.3 Changes in Final and Intermediate Exports Composition between Agadir_4 and the E.U.

This section will orient the reader on the remarkable variation of sector specific exports driven from the model's data incorporated with data from Agadir Technical Unit database for 2010 between the Agadir_4 and E.U before and after the on-set of the agreement and adoption of Pan-Euro RoO. Figure 3.2 divided into parts A and B both plotting some of the significant results for sector specific flows between Agadir_4 final exports and intermediates to be sold to firms for final production at the E.U. two years before the onset of the agreement and two years after. The most striking result implicated from the data is the emergence of new sectors such as Rubber Products, Leather, Minerals after the agreement was established and RoO applied either for exports or intermediates. In general, the Petrochemical related industries including several new sectors[100] constituted 70 percent of Agadir_4 exports to the E.U. The intensity of flows increased for exports of other chemicals recording nearly triple for final exports and quadruple for intermediates during 2008. The only two sectors scoring lower flows after the onset of the agreement were Machinery spare-parts and furniture.

Figure 3.2: Parts A and B: Sector Specific Exports and Intermediate flows during 2004 and 2008



Source: (Estevadeordal 2000; ATU Statistics 2009; CEPII original data; Eurostat 2011)

[100] Petrochemical related industries for Agadir 4 exports to E.U. during 2008 was proportioned as follows: Industrial Chemicals at 42 percent Other Chemicals at 30 percent , Minerals 6 percent , Rubber Products are 3 percent. (CEPII Gravity dataset 2010; Eurostats.un.org 2011; ATU 2009)

Moreover, Table 3.2 demonstrated that the sectoral breakdown of export flows from Agadir_4 to E.U. considering two comparative points: as two years, prior the adoption of Pan- Euro diagonal RoO in 2004 to include data analysis covering the onset of Agadir agreement 2005. As well, two years later during 2008 to guarantee that Pan- Euro RoO went in vigour for all countries. The table includes a breakdown of Agadir_4 to E.U. sector specific exports and intermediate flows based on CEPII's trade dataset 2010, TradeProd database. and the percentage of RVC[101] and LVC[102] , MFN tariff rates applied on each sector and finally RoO schemes adopted all derived from Agadir Technical Unit database 2010. In general, a remarkable difference has been observed in sector specific exports from Agadir_4 to E.U. First commentary suggests that during 2004 around 66 percent of Agadir's_4 exports to the E.U encompassed: Machinery Spare Parts, Furniture, chemical sector and its derivatives, meanwhile, during 2008 Petrochemical related industries included several new sectors[103] reaching 70 percent of their exports. Other key export flows which grew at considerable rates were processed food products growing by 4.1 times, textiles by 5 times. As for intermediate sectors rubber products grew at 48 times more after Pan-Euro RoO were implemented. More over in Table 2.3, there has been a significant increase in RVC for gross exports[104]with more pronounced results for the following sectors: Other Chemicals and Textiles at 40 and 45 percent respectively during 2008, in contrast to a lower percentage of 20 and 27 percent recorded respectively in 2004. This eventually signals to the improvement in the complexity and higher regional value-added content allowed for manufactures to culminate at a threshold of up to 50 percent from any (RoW) country and not necessarily European countries.

As well the reference of Kruegar (2003) pointed to the correlation between MFN tariff and adoption of Pan-Euro RoO. This correlation signified that the higher will the '**Most Favoured Nations Tariff'** [105]rates (MFN) be, the more incentives will appear for exporters to apply diagonal Pan-Euro RoO.

[101] RVC Regional Value Content the threshold between [40%-50%] of value or components that is allowed to be accumulated or imported into the product or sector from outside the Pan-Euro diagonal RoO applicant countries

[102] LVC: Domestic Value Content the local or domestic component or a product that should originate in the country and not from outside the Pan-Euro RoO applicants group and it has a threshold of between [50%-60%]

[103] Petrochemical related industries for Agadir 4 exports to E.U. during 2008 was proportioned as follows: Industrial Chemicals at 42 percent Other Chemicals at 30 percent , Minerals 6 percent , Rubber Products are 3 percent. (CEPII Gravity dataset 2010; Eurostats.un.org 2011; ATU 2009)

[104] Gross exports: stands to the classification of exports to two categories of value added and intermediate components and both can then be reclassified in to Domestic and foreign content for value added and intermediate product. (UNCOM trade database, 2011)

[105] Most Favored Nations Tariff Rates (MFN): high tariff rates that WTO countries are allowed on one another; in case of being a non-member of the PTA with the other country (World Bank)

For Table 2.3 average MFN tariff across all sectors exceeded 8 percent, this is considered a high premium encouraging trading partners to apply Pan-Euro diagonal RoO at a lower cost over the MFN tariff rates. In this case, the RoO average '**Compliance Costs**'[106] for Agadir_4 to E.U. was lower than 6 percent for most of the sectors. The broad class of Petrochemical Industries with Industrial Chemicals, Other Chemicals and Minerals were grouped together at a common average MFN tariff rate higher than 6 percent[107] and at the same time lower RoO compliance costs for those sectors, will allow for cost effectiveness in case of applying Pan-Euro diagonal RoO. Literature reviews earlier elaborated by Kruegar (1993) and Duttagupta and Panagariya (2003) and Chase (2008) and Estevadoerdal, Harris and Suominen (2007), emphasized that RoO are divided into two components. The first will be the sector specific provisions for RoO and Regime harmonizing RoO. In this case petrochemicals will comply to sector specific RoO through the following changes in tariff rates and value-added content (C. S+C.H+V.C)[108], As for the regime wide RoO component, it enjoys more flexibility, thus allowing to include regional value content from outside members and at the same time giving permissiveness to apply Pan-Euro diagonal RoO which will fulfil the purpose of our treatment approach in section 3.5

Table 3.2: Some of the Sector Specific Exports, Intermediates, RVC and LVC, MFN tariff % and Sector Specific RoO applied between Agadir_4 and EU during 2004 and 2008

2004	USD		In Percentage		USD		In Percentage	
Sector	G. E 2004	Intermediates 2004	RVC%	LVC %	R.V.A	L.V.A	MFN tariff %	Sector RoO provisions
Machinery Spare Parts	5,084,348	1,932,052	5%	95%	157,615	2,994,681	7.67%	C.S+V.C
Furniture	3,431,894	1,304,120	20%	80%	425,555	1,702,220	7.25%	C.H+V.C
Other Chemicals	1,944,016	738,726	20%	80%	241,058	964,232	23.60%	C.S+C.H+V.C
Petroluem Refineries	1,393,919	529,689	20%	80%	172,846	691,384	6.70%	C.S+C.H+V.C
Paper	905,339	344,029	28%	72%	157,167	404,143	8.00%	C.S+C.H+V.C
Food Products	677,207	257,339	10%	90%	306,504	113,365	33.60%	C.S+CH+V.C+C.C
Textiles	660,380	250,945	27%	73%	110,548	298,888	13.00%	C.S+C.H+V.C+C.C+TECH
Industrial Chemicals	383,138	145,592	27%	73%	64,137	173,408	5.70%	C.S+C.H+V.C
Rubber Products	66,315	25,200	20%	80%	8,223	32,892	9.30%	C.S+C.H+V.C

[106] RoO Compliance Costs: they represent the costs of complying with rules of origin to be decomposed into distortionary costs (caused by changes in the production structure to enable compliance), in addition to administrative costs to prove origin. Total compliance costs were found to be 8% for EU rules of origin

[107] MFN tariff rate: when it is higher than 1.5 percent; this represents the threshold point for taking the decision to compare cost of compliance with PECS RoO versus payment of the MFN tariff rate. In this case a MFN tariff higher than 1.5 percent, indicates that a country prefers to apply PECS RoO which is less costly and will not exceed 1.5% (ATU 2009).

[108] (C.S+C.H+V.C): They represent three categories of C.S: change of subheading, C.H. :change of headings: and V.C, :Value added content change all grouped under the sector and product specific RoO applied for the group of petrochemical sectors (i.e. industrial and other chemicals and minerals). (European Commission regulations on RoO)

2008	USD		in Percentage		USD		In Percentage	
Sector	G.E. 2008	Intermediates 2008	RVC %	LVC%	R.V.A	L.V.A	MFN tariff %	Sector RoO provisions
Machinery Spare Parts	2,909,524	1,105,619	40%	60%	721,562	1,082,343	7.20%	C.S+V.C
Furniture	2,080,824	790,713	40%	60%	516,044	774,067	3.20%	C.H+V.C
Other Chemicals	12,110,124	4,601,847	40%	60%	3,003,311	4,504,966	8.00%	C.S+C.H+V.C
Food Products	2,791,924	1,060,931	27%	73%	467,368	1,263,625	16.70%	C.S+C.H+V.C+C.C+W.O+TECH
Textiles	3,253,924	1,236,491	45%	55%	907,845	1,109,588	10.35%	C.S+C.H+C.C+V.C+TECH
Industrial Chemicals	2,350,324	893,123	40%	60%	582,880	874,321	3.70%	C.S+C.H+V.C
Rubber Products	3,869,824	1,470,533	31%	69%	743,780	1,655,511	7.90%	C.S+C.H+V.C
Minerals	5,162,724	1,961,835	20%	80%	640,178	2,560,711	7.00%	C.S+C.H+V.C
Leather	1,325,324	503,623	40%	60%	328,680	493,021	8.24%	C.S +C.H

Note: Agadir_4 agreement with E.U. for sector specific exports and intermediate flows included other small sector specific flows for petroleum refineries and wearing apparel. Machinery Spare is here an aggregate to include transport, scientific and electric machinery spare-parts and accordingly its total flows during 2008 decreased but the breakdown of different spare parts have different values and impact of RoO)

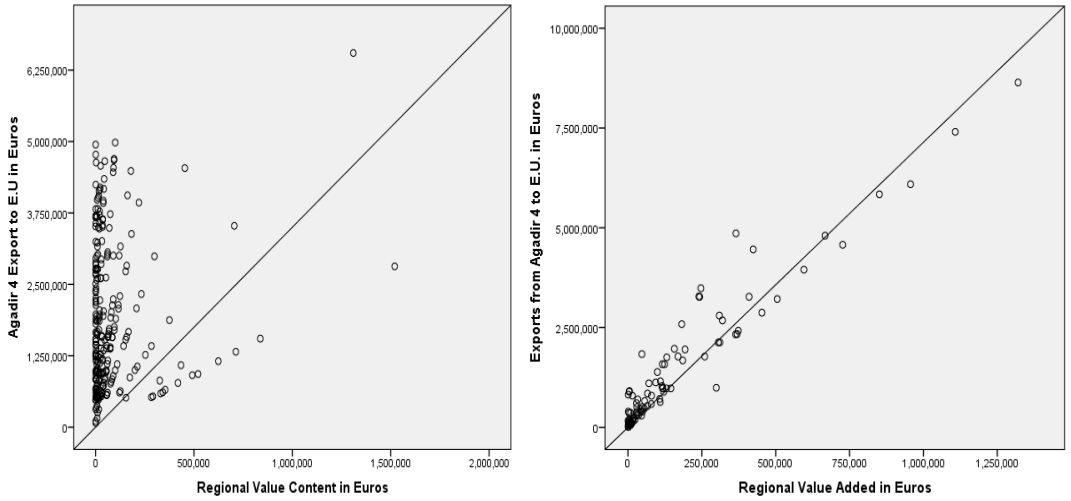
Source: (Estevadeordal 2000; ATU Statistics 2009; CEPII original data; Eurostat 2011)

Figure 3.3 indicates to the contrast between Agadir's 4 total final exports to the E.U. at two distinctive points during 2004 and 2008 versus the increase in regional value content. It also gives a justified explanation about the change in the spatial structure and composition between final and intermediate exports and how final and intermediate exports are correlated to RVC. In this figure, we are using precisely the percentage of RVC which was derived from the analysis, the higher is RVC to reach the threshold of 40 percent, the more effective will Pan-Euro diagonal RoO be (which is the treatment used in our econometric model work later) and higher intensity of export flows will emerge between Agadir_4 and E.U. The presence of more observations at lower values for part A of Figure 3.3 during 2004, compared to a trend line with observations taking an increasing slope for higher values of final exports at Figure 3.3-part B during 2008, indicates to the fact that as RVC became higher, final exports will also increase. However, this relation is not equally evident for intermediate flows, as seen the observations are more dispersed and they take no trend in Figure 3.3 of part D and in this case higher RVC does not motivate intermediate flows to increase directly.

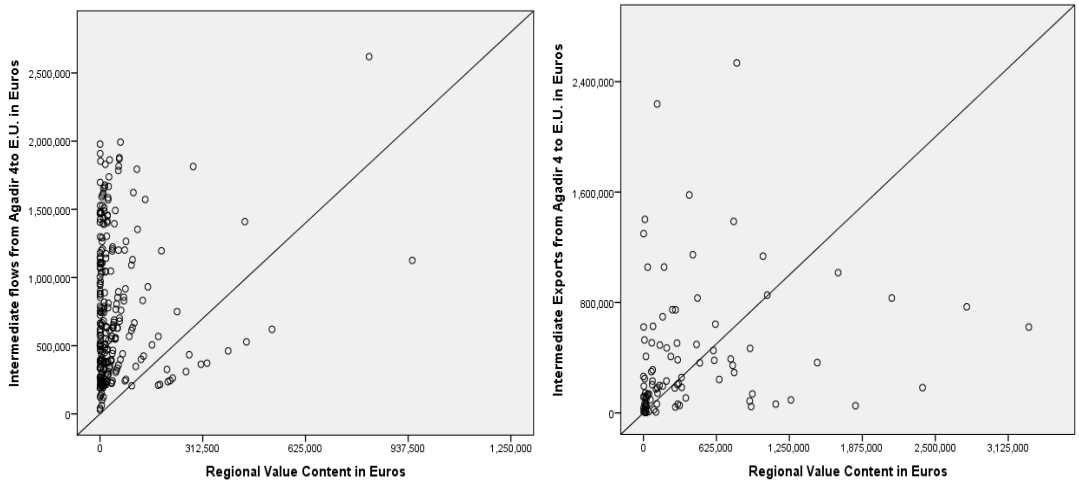
This relation between RVC and final and intermediate exports will be further investigated after treatment with diagonal PECS RoO, as part of the impact evaluation methodology of section 3.5

Figure 3.3: Scatter Diagram of Agadir_4 Exports to E.U. versus the Increase in Regional Value Content 2004/2008

A - 2004 **B - 2008**



C- 2004 **D - 2008**



Own's elaboration based on original source and ATU Statistics 2010.

3.4 Cluster Analysis: Screening Sector Specific Exports between Agadir_4 & E.U

3.4.1 Cluster Analysis Theoretical Background and Specifications

Cluster analysis technique is a form of reducing data dimensionality and theoretically was initially built upon Porter's (2010) data findings backed up by the '**Complementarity opportunities**[109]**,** between manufacturing sectors. The cluster technique is usually used to organize multivariate data into groups (clusters) to maximize homogeneity between cluster members and heterogeneity between different clusters (Nenci and Motalbano, 2010). Clusters for trade and regional blocs analysis

[109] Complementarity Opportunities: referring to the complementary relationship between different components or spare parts of the same industry or sector that could lead to the creation of industrial clusters with positive spillover effects (ATU Report 2009)

progressed to assess bilateral trade intensities, which started earlier by Duran and Odell (1974) and continued by Artist and Zhang (2001), when they linked countries by density linkage algorism to be clustered. In attempts to develop a similar study, Agadir Technical Unit Report (2009) conducted a business field survey for supply chain analysis between their sector specific final and intermediate trade flows. They also considered in their analysis the impact of applying Pan-Euro diagonal RoO, however their results were not modelled empirically.

The purpose of the '**Cluster Analysis'**[110] in this chapter is to provide an empirically justified basis for selecting final and intermediate export flows between Agadir 4 and E.U. to be subject to Pan-Euro diagonal RoO later on the econometric section and to act as robustness check to the treatment with RoO. In order to proceed by choosing the appropriate number of final and intermediate sector specific export flows, we will apply '**Hierarchal Cluster**[111]' Analysis to determine the number of groups under which sectors would be classified. Then we need to specify the basis on which sector observations will clustered and in our case, they were clustered based on RVC and export flows and intermediate flows are three chosen variables for clustering sectors due to their low correlation less 0.6 between the variables and their independence from sectoral breakdown. The analysis will be iterated once more by using a '**Two-Step Cluster Analysis**'[112] to check for the consistency of hierarchal cluster results and as two- step can be used for large datasets that can take longer time to calculate by hierarchal cluster. Both hierarchal and two step cluster analysis were conducted using the underlying descriptive data covering 19 sectors, once at the initial phase before treatment with Pan-Euro diagonal RoO during year 2004 and later-on during 2008 to demonstrate how sectors will be clustered after treatment with Pan-Euro RoO.

[110] Cluster Analysis: identification and classification of a group of individuals that are similar to each other within their group peers, but different from each other compared to other groups. We have three types of cluster: First, K-means which is a non- hierarchal and cluster number is pre-determined before the analysis.

[111] Hierarchal Cluster: creating hierarchically related sets of clusters with one method known as agglomerative hierarchical cluster; beginning by each observation being considered as a separate cluster by itself and then combining the closest two groups together and this process continues until all observations belong to the same group(Kaufman and Rousseeuw 1990)

[112] Two Step Cluster: grouping of similar individuals and usually common to use for large datasets and it uses a combination of hierarchical and non- hierarchical clusters; usually a pre-cluster technique is needed and it includes as well continuous and categorical variables in the cluster evaluation. (Kaufman and Rousseeuw 1990)

Table 3.3 Two-Step Cluster Distribution Table for Exports and Intermediates for year 2008 after treatment with RoO

Exports		N	% of Combined	% of Total
Cluster	1	23,517	42.1%	40.0%
	2	12,405	21.1%	20.0%
	3	21,636	36.8%	35.0%
	Combined	57,558	100.0%	95.0%
Excluded Cases		2,878		5.0%
Total		58,793		100.0%

Intermediates		N	% of Combined	% of Total
Cluster	1	21,753	42.1%	40.0%
	2	15,167	26.3%	25.0%
	3	18,223	31.6%	30.0%
	Combined	55,143	100.0%	95.0%
Excluded Cases		2,757		5.0%
Total		57,670		100.0%

Source: Own's elaboration of Cluster Analysis from the original source and ATU database 2010.

Table 3.3 and 3.4 both represent the Cluster results for final and intermediate exports between Agadir_4 and E.U. and those clusters will be later exposed to treatment with Pan-Euro diagonal RoO. The data regarding final and intermediate export flows were extracted for 2004 from Table 3.2 on the data analysis. Table 3.3 encompasses the number of observations for sector membership, and their percentage of total observations for each cluster groups as described. The preliminary results suggested the presence of three broad cluster categories based on exports after 2008 and they are **Cluster 1**: Petrochemicals, **Cluster 2**: Consumer Non-Durables and **Cluster 3**: Machinery spare parts and Components. This is quite a reasonable result compared to the smaller cluster groups; encompassing all sectoral flows and did not show any basis for classification for exports and intermediate during 2004.

Cluster 1 is the biggest in size at 40 percent and composed of 6 sectors listed in Table 3.4 and it is classified as Petrochemicals cluster. As previously demonstrated in data analysis in Table 3.2, across all petrochemical sectors, the average RVC reached up to 25 percent during 2004; thus, allowing quarter of the sector's inputs to be cumulated from outside the Pan-Euro group. This signifies that applying Pan-Euro diagonal RoO would yield promising results for this cluster, especially after the Cluster's group RVC threshold increased on average to 45% during 2008, after Pan-Euro diagonal RoO was applied. Cluster 2 composed of 3 sectors belonging to non-durable consumer goods exports, characterized by a moderate percentage of RVC during 2004 in reference to Table 3.2. The only problem with Textiles and processed Food, that they are subject to higher technical standards placed on their trade flows due to technical, sanitary and phytosanitary restrictions imposed by the E.U., which prevent them from applying Pan-Euro RoO effectively. Finally Cluster 3 under which 7 other sectors fall and is comprised of feeding and component sectors pouring into heavy duty machinery components, automotive spare parts, furniture, and leather. This cluster constituted the lowest

permissiveness of RVC to be sourced out from outside the Pan-Euro RoO member countries during 2004.

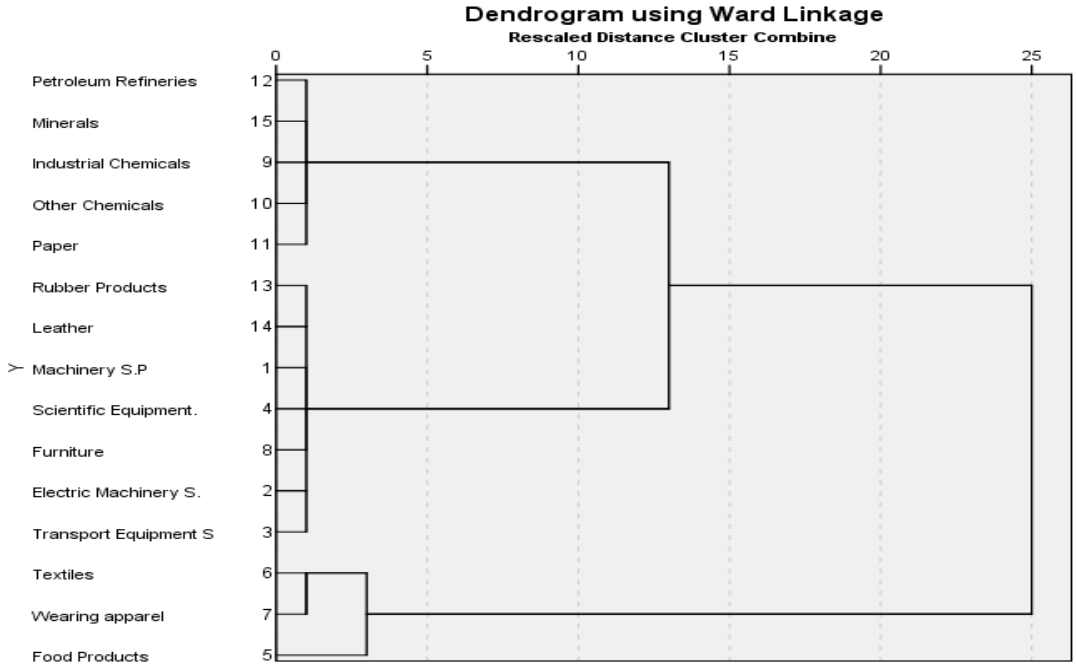
Table 3.4 Sector Cluster Membership classified by Final and Intermediates Export Flows and RVC between Agadir_4 to E.U.

Clustering Sectors by Export Flow Values bet. Agadir_4 and E.U.		
Petrochemicals C1	**Non- Durables C2**	**Machinery S.P C3**
Rubber Products	Food Products	Machinery Spare Parts
Industrial Chemcials	Textiles	Electric Machinery S.P
Other Chemicals	Wearing Apparel	Transport Equipment S.P
Paper		Scientific Equipment S.P
Petroleum Refineries		Furniture
Minerals		Leather
		Rubber Products
Clustering Sectors by Intermediate Values bet. Agadir_4 and E.U.		
Highest Intermediates C1	**Medium Intermediates C2**	**Less Intermediates C3**
Other Chemicals	Industrial Chemicals	Transport Equipment S.P
Food Products	Furniture	Scientific Equipment S.P
Machinery S.P.	Minerals	Electric Machinery S.P.
	Textiles	Leather
	Transport Equipment S.P	Rubber Products
		Paper
		Minerals
		Rubber Products

Source: Own's elaboration of model's estimation based on original source, CEPII, 2010 & ATU 2010.

As for intermediate goods shown on Table 3.4, they are clustered as well by RVC and could be classified as well into three clusters with different degrees of intermediate components: starting by cluster 3 made up of the lowest intermediate values and lowest RVC during 2004. Table 3.2. earlier. On the other hand, Cluster 1 having the highest intermediates and high RVC for other chemicals and especially for machinery spare parts, however food products had a lower RVC of 10 percent. This relation generally shows that the increase in RVC will gradually lead to higher export intensity of intermediate flows between Agadir_4 and the E.U but not for all sectors. The relation is evident for sectors such as machinery Spare parts and other chemicals., however, after the onset of diagonal RoO, rubber products intermediate flows increased substantially, yet the RVC for sector is still not high compared to other intermediates.

Figure 3.4: Dendrogram of sectors from Agadir_4 to E.U. clustered by exports flows and RVC

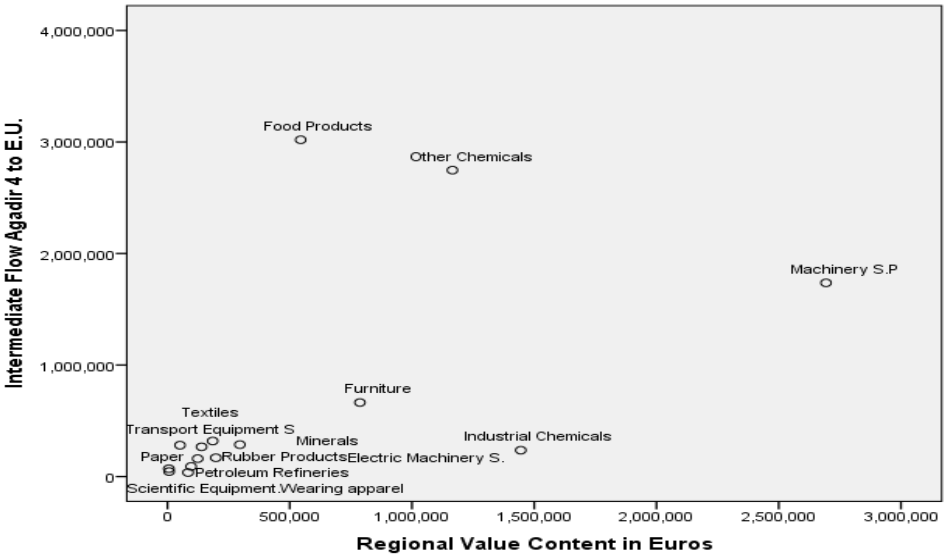


Source: Elaboration Cluster Analysis

Below Figure 3.4 known as a '**Dendrogram**[113]'; which is a visual representation of the hierarchical cluster being plotted at distances through a group of sectors which are combined to form a cluster. It is usually read from left to right and the vertical lines show the overlap between clusters. The three clusters are evident with cluster 1 containing 6 sectors, and Cluster 2 having 3 sectors and finally the last cluster 3 with again 7 sectors. As for Figure 3.5, plotting intermediate exports in a scatter diagram to detect the correlation between intermediate export flows and regional value content through the employment of the 'Nearest Neighbour Graph[viii] (Barchert and Titze and Kubis, 2011).

[113] Dendrogram: visual representation of how a cluster is combined, it is read from left to right and the vertical lines show joined clusters and the line's position on the scale indicates the distance to which clusters could be joined. Rescaled distances on a Dendrogram fall in a range of 1 to 25 and they are proportional to the data's original distances. First vertical line corresponds to the smallest rescaled distance and so on

3.5: Nearest Neighbor Analysis to detect correlation between RVC and intermediate flows between Agadir_4 and E.U



Source: Elaboration Cluster Analysis

3.5 Methodological Approach using Gravity Equation

3.5.1. Theoretical Foundation for Gravity model used in this Analysis: (Poisson Pseudo Maximum Likelihood Estimator Silva & Tenreyro, 2006)

Our gravity model in this chapter is conceptualized to be in line with the considerable realm of empirical literature, contributing to the enrichment of the theoretical framework of the gravity variables (Rose, 2003; Frankel, Stein and Wei, 2005; Frankel, 2007; Baier and Bergstrand ,2007; Mitchell, 2007; Head and Mayer, 2009; Head and Mayer, 2012) and apart from that it will be calculated by the '**Poisson Pseudo Maximum Likelihood estimator' (PPML)**; based on Silva and Tenreyro (2006). This is especially due to its PPML's multifunctional nature specialized in resolving for '**Heteroskedasticity**[114]' problems of multiple error terms mostly common in nonlinear models with sector specific flows. Usually heteroskedasticity problems are unlikely to be resolved by the OLS estimator, as verified before

[114] Heteroskedasticity: it is the state when the standard error component of the regression model assumed not to have constant variance across time and individual in the case of panel data. Although in this situation homoscedastic disturbances when heteroskedasticity exists will result in consistent estimates of regression coefficients, yet these estimates will not be efficient and should be corrected for. (Baltagi 2005)

by Egger et al. (2009). PPML estimator further was proven from previous studies to yield consistent results with respect to adding exporters, importers, industry and time fixed effects (Fally 2013). Above all, PPML act as an efficient estimator, as it increases the observations base through accounting for the '**Zero Trade Flows**'[115]*';* and to verify for unbiased estimation results. As the Agadir_4 to E.U sector final and intermediate export flows subset sample is composed of a 30 percent zero flows and for that purpose PPML was fit for this estimation. The standard baseline model estimates the dependent variable which is Agadir_4 to E.U. export flows for one equation and intermediate export flows for a second equation. The dependent variable is estimated in levels and the regressors are in logarithms. The general framework of gravity model under PPML log linearization to treat for heteroscedasticity and inconsistent estimated through OLS and based on Silva and Tenreyro (2006) will be:

$$\text{Ln}\,(Flow_{ij,t}^{k}) = \text{Ln}\,\beta_0 + \beta_1 \ln(gdp_i) + \beta_2 \ln(gdp_j) + \beta_3 \ln(distw_{ij}) + \pi_{0i} + \chi_{0j} + \varepsilon_{ij} \quad \text{eq. (3.1)}$$

The expected value of the log linearized equation:

$$E[\text{Ln}\,(Flow_{ij,t}^{k})] = E[\text{Ln}\,\beta_0 + \beta_1 \ln(gdp_i) + \beta_2 \ln(gdp_j) + \beta_3 \ln(distw_{ij}) + \pi_{0i} + \chi_{0j} + (\varepsilon_{ij})] =$$

$$E[\text{Ln}\,(Flow_{ij,t}^{k})] = E[\text{Ln}\,\beta_0] + [\beta_1 E[\ln(gdp_i)] + \beta_2 E[\ln(gdp_j)] + \beta_3 E[\ln(distw_{ij})] + E[\pi_{0i}] + E[\chi_{0j}] + E[(\varepsilon_{ij})]$$

Since Ln E[ε_{ij}] ≠E[ln(ε_{ij})] (Jensen inequalty) thus the estimation through OLS will be misleading

Table 3.5 below provides an executive summary of the classic and augmented variables of the gravity equation and the predicted signs and comportment of each variable in determining final or intermediate export flows.

3.5.2) Gravity Variables Specifications:

In this case, the dependent variable which will measure exports and intermediate flows between Agadir_4 and E.U denoted by $Flow_{ijt}^{k}$ for sector specific(k) exports from country(i) to country(j) and for number of year time (t). The export flow data has been derived from United Nations Industrial Development Organization and Agadir Technical Unit statistical database 2010. Then Exporters and Importers economic size is reflected in their GDPs';where $gdp_{it}$and gdp_{jt}disaggregated by origin and destination countries could still be used as a viable proxy to estimate sector specific GDP; as previously employed by Feenstra et al (1998). Both

[115] Zero Trade Flows: referring to zero bilateral trade flow between two countries, which are usually common in trade and investment flows and the model's dependent variable cannot be transformed to a log linearized form under the presence of many zero trade values. .PPML serves as one of the estimators correcting for the zero trade value problem., obtained by the TOBIT estimator used in Eaton and Tamura .(Silva & Tenreyro 2006)

GDP_i and GDP_j are based on nominal values driven from CEPII Gravity dataset 2011 (TRADPROD). Geographical distance is introduced as a dyad variable denoted by $Distw_{ij}$ to reflect on geographical trade barriers between country pairs. As the Contiguity the dummy is approximated by $Contig_{ij}$ and takes value 1 when both countries i and j share a common border (Frankel and Stein and Wei, 2005; Frankel, 2007) .The set of augmented gravity variables are included to account for historical, cultural and, linguistic and regional trade areas affinities dummy variables and annotated as follows $Comlang_{ij}$ and Col_{ij} and rta_eu_{ij}respectively. rta_eu_{ij} here will account for onset of regional trade agreement between Agadir_4 countries E.U. countries; which reserves value of one in case of membership in E.U. agreement and zero otherwise. (Baier and Bergstrand 2007). The augmented variables are adapted from CEPII's Gravity Dataset 2011 (TRADPROD) and in conformity with the theoretical background for unbalanced panel data in gravity modelling (Egger, 2000; Rose and Wincoop, 2001; Baltagi,2003; Frankel, Stein and Wei, 2005; Frankel, 2007; Melitz, 2007; Head and Mayer, 2012).

Finally, at this point and for the purpose of introducing treatment with Pan-Euro diagonal RoO, the mfn tariff rate[116] will be incorporated in baseline model as a dummy; defined by the bilateral tariff applied for sector specific agreements between Agadir_4 and E.U. countries. The MFN tariff determines whether the adoption of Pan-Euro diagonal RoOs are at higher cost or less than MFN tariffs applied, as motivated previously by Gasiorek and Augier and Lai-Tong (2008). Lower MFN tariff rates, sweeps the incentives to apply diagonal RoO due to their high administrative compliance costs. In addition, we have introduced the fixed effects by origin δ_i , destination δ_j, time λ_t ,and sector α_k that are essential in that model to control for unobserved heterogeneities **'Multilateral Resistance'**[117] that are constant for a given exporter across all importers and vice versa and for time and sectors as well (Anderson and Van Wincoop, 2003; Chaney,2008; Helpmann et al., 2008; Baldwin and Tagiloni, 2007).

[116] MFN Tariff Rates: The ones applied for sectors and product groups between Agadir_4 trade flows to E.U. will be essentially important at this context; as it is a requisite, in order to contrast between costs of applying RoO and MFN tariff rates.

[117] Multilateral Resistance terms (MRT): After controlling for size of trading partners, there are other bilateral barriers between regions or trading partners that they are facing. MRT, as a function of distance and barrier dummies such being islands and landlocked (Anderson and Van Wincoop 2003)

Baseline Gravity by using PPML Estimator for each Sector:

$$Flow_{ijt}^{k} = \beta_0^k + \beta_1^k \ln(gdp_{it}) + \beta_2^k \ln(gdp_{jt}) + \beta_3^k \ln(distw_{ij}) + \beta_4^k contig_{ij} + \beta_5^k Comlang_{ij} + \beta_6^k Col._{ij} + \beta_7^k rta\_eu_{ij} + \beta_8^k mfn\ tarif_{ij} + \lambda_t + \delta_i + \delta_j + \alpha_k + U_{ijt}] \quad \text{eq(3.2)}$$

Table 3.5: Variables of the Sector Specific Gravity Model

Variable	Description	Database	Expected Sign
$Flow_{ijt}^{k}$	Exports from origin i to destination j for year t and in sector k Intermediate from origin i to destination j for year t and in sector k	-Own Model's estimation and -UNIDO -ATU 2009	-
gpd_{it}	Nominal GDP in the origin country i (exporting) for year t.	- CEPII Gravity dataset 2011 (TRADPROD)	+ve
gdp_{jt}	Nominal GDP in the destination country j (importing) for year t.	- CEPII Gravity dataset 2011 (TRADPROD)	+ve
$Distw_{ij}$	Bilateral Distance between from Origin i to destination j	CEPII Gravity dataset 2011	- ve
$Contig_{ij}$	Dummy=1 if (i and j are contiguous; otherwise 0)	-CEPII data base	+ve
$Lang_{ij}$	Dummy=1 if (i and j both have common language; otherwise 0)	-CEPII data base	+ve
Col_{ij}	Dummy=1 if (i and j both belonged to same colony; otherwise 0)	-CEPII data base	+ve
rta_{ij}	Dummy=1 if (i and j both belonged to same regional trade area with E.U.; otherwise 0)	Baier and Bergstrand (2007)	+ve
$mfn_{tariff_{ij}}$	Bilateral Most Favored Tariff rate applied between origin i and destination j.	-Augier et al (2007) -(WITS) database -ATU data 2010	-ve

3.5.3 Gravity Model Data Specifications:

For estimation purposes, the '**Augmented Gravity model**'[118]will be used with a dependent variable modelling sector specific final and intermediate export flows between Agadir_4 and E.U., starting with

[118] Augmented gravity model: The default gravity model with classical variables, while, the rest of independent variables augment the model's power and accuracy with addition of more variables and they are disaggregated into a set of dummy variables such contiguity, common language, colonial history, regional trade agreement's pertinence, MFN tariff application, PECS diagonal RoO provisions ,besides a vector of origin , destination and time fixed effect

all 16 manufacturing sectors grouped into the three clusters obtained previously form the cluster analysis. Data calibration is based on the 'International Standards for Statistical Classifications' (ISIC) bound to revision 4 and raw trade and production data were obtained from CEPII Gravity dataset (TRADPROD), United Nations Industrial Development Organization[119] for years 2006 to 2010 and Agadir Technical Unit statistical database with sector specific flows (CEPII Gravity Dataset, 2011; UNIDO, 2011; Nicita and Olarreaga, 2007; Gaulier and Zignago, 2010; ATU Statistics, 2010). The model's timeframe covered 2000 to 2010 and included rta dummy to capture most of the bilateral trade agreements[ix] and initiatives taking place between the South Mediterranean countries and E.U countries, precisely after year 2000 onwards till 2010[x]. The model's dataset allowed the classification into two comparative periods of six years prior to the adoption of Pan-Euro diagonal RoO and the other 5 years' post diagonal RoO application for robust results. The bigger dataset covered 167 countries holding approx. 325,000 observations, meanwhile, the smaller one fitted to the purpose of estimating export flows between Agadir_4 to E.U. 26[xi] and it covered 155,605 observations.

3.5.4 Results for Baseline Model Using PPML:

As exhibited in Table 3.6 most of the coefficients for PPML estimations were significant and carry the expected signs and magnitudes. Importer's and exporter's GDP coefficients are closer to 1 in most of the estimations, however lower than OLS coefficients and sectors with the most remarkable exporter's and importer's GDP coefficients, are the ones showing the highest export values between Agadir_4 and EU; especially for Food Products, Machinery Spare Parts, Leather and Paper for gdp_i coefficients reaching an average factor of 2.4 (=exp[0.9105***])[xii] ,meanwhile, Furniture, Beverage, Medical Equipment, Textiles and Transport components for gdp_j coefficients directly at an average factor of 2.45 (=exp[0.892***]). The distance (Lndistw) with the inverse signs across all sectors and high levels of significance, indicating to the presence of trade barriers in the context of PPML estimations. Contiguity Border Effect[120]; had shown high sensitivity in controlling for inter-regional exports between Agadir_4 and E.U. countries at highly significant coefficients across most sectors. As well rta dummy, has shown high levels of significance of how bilateral trade agreements with E.U. increased exports flows by a factor of 1.62 (=exp [0.602]-1) at 62 percent across all sectors except for processed food products for which the agreement is partly ineffective due to presence of restrictive sanitary measures.

[119] United Nations Industrial Development Organization (UNIDO): An electronic database on production, trade and tariff data covering 67 countries and on the basis of 28 industries with the 3 digit level of the ISIC classification. The sector specific trade data is exposed to a software for data to be calibrated in concordance with the Harmonized System of 4-digit sectors and product RoO adoption.

[120] Border Effect in trade:" After controlling for size, trade between two countries depends on relative trade barriers and trade costs "(Anderson and

The two variables denoted by(Col_{ij}) and $(comlang_{ij})$ respectivley contributed to increasing export flows between country pairs sharing common colonial history and languages; given that most of Agadir countries were previous French and British colonies and their cultural proximity to European countries [121] facilitated commercial relations. The mainstream literature relating trade to colonial ties was motivated by Head and Mayer and Ries (2010). The (Col_{ij}) dyad reported an average factor of 1.83 (=exp [0.602]-1) along all sectors; thus, magnifying exports between country pairs[122]; sharing common colonial background by an increase of 83 percent and $(Comlang_{ij})$ at a slightly lower factor of 1.18 (=exp [0.78]). In this context and in consistency with the literature introducing bilateral MFN tariff term (mfn_tariff_{ij}) dummy does not appear to be of great significance to our PPML estimation and export flows between Agadir_4 and E.U. (Augier et al., 2007).

3.5.5 Results for Baseline Model Estimated by PPML and using the three Clusters

This comparative scenario as illustrated on Table 3.7 aims to replicate the normal PPML estimation performed previously for sector specific export flows between Agadir_4 and E.U, however by introducing the three clusters into the estimation chronologically as: Cluster1, Cluster 2 and Cluster 3 to replace the 16 sectors representing export flows between Agadir_4 and E.U. The estimated results were below unity for GDP coefficients of both countries i and j, however conforming with the expected signs. Distance as a proxy for trade barriers had inversely impacted export flows at high levels of significance with coefficients exceeding unity across all sectors and at an average factor of 2.85 (=exp [1.05]), (=exp [1.044]) and (=exp [1.033]) for the three clusters respectively. As well the set of historical and cultural affinity dummies on top of which are $comlang_{ij}$ and Col_{ij} increased the model's explanatory power. More importantly the results of the three clusters analysis exhibited that a one level increase in their coefficients caused the export flows between Agadir_4 and E.U. to rise by a factor of 71.2 (=exp [4.266]) for cluster 1 of petrochemicals and 1.832 (=exp [0.626]) for Cluster 3 of machinery spare parts. Meanwhile a one level increase in the coefficient of the second cluster of consumer non-durables, negatively impacted exports at a factor of 3.21 (=exp [1.174]) for this cluster. Those results maintained consistency with the previous cluster analysis for petrochemical cluster with all its underlying sectors, however, it contradicts the previous results for consumer non-durables sectors.

[121] Two of the Agadir countries are from Maghreb region Tunisia and Morocco and at the same time were previous French colonies for so long, after gaining independence during 1947 and this was the very strong reason why European Union neighborhood Policy sought as one of its main objectives to strengthen political, cultural and commercial bonds with south Mediterranean countries . (Model's output and dataset Gravity CEPII 2010)

[122] The formula to compute this increasing effect on trade flow for PPML estimation coefficient is as follows (e^{b_i} - 1) x100% where b_i reserves the value of the estimated coefficient(Silva & Tenreyro 2011).

Table 3.6 PPML: Base line Scenario PPML Estimation for Exports between Agadir_4 and E.U.

VARIABLES Export Flows	Food Products	Electric Machinery	Furniture	Rubber Products	Industrial Chemicals	Leather	Machinery S.P	Other Chemicals	Paper	Scentific Equipment	Medical Equipment	Textiles	Transport Equipment
lngdp_i	0.887***	0.955***	0.782**	0.846***	0.709***	0.924***	0.873**	0.657**	0.822***	0.681**	0.969**	0.800***	0.957**
	(0.0321)	(0.0273)	(0.0304)	(0.0191)	(0.0212)	(0.0197)	(0.0221)	(0.0295)	(0.0153)	(0.0349)	(0.0272)	(0.0176)	(0.0544)
lngdp_j	0.776***	0.918***	0.861***	0.882**	0.549***	0.852**	0.812***	0.760**	0.832***	0.828**	0.978**	0.819***	0.895**
	(0.0245)	(0.0460)	(0.0228)	(0.0206)	(0.0453)	(0.0205)	(0.0259)	(0.0268)	(0.0171)	(0.0291)	(0.0261)	(0.0175)	(0.0387)
lndistw	-1.175***	-0.955***	-1.134***	-1.130***	-1.125***	-0.970***	-1.063***	-1.013***	-1.162***	-0.829***	-1.125***	-0.977***	-0.993*
	(0.0459)	(0.0362)	(0.0569)	(0.0512)	(0.0249)	(0.0531)	(0.0422)	(0.0488)	(0.0559)	(0.0999)	(0.0722)	(0.0524)	(0.0521)
contig	1.357***	0.327***	0.111***	0.499*	1.448***	0.805***	0.400***	0.740***	0.698***	0.729***	0.676***	0.880***	0.173***
	(0.0316)	(0.158)	(0.151)	(0.134)	(0.025)	(0.035)	(0.070)	(0.063)	(0.011)	(0.021)	(0.010)	(0.013)	(0.174)
comlang	0.816***	0.276***	0.799*	0.824***	1.270***	0.382***	0.911***	0.772***	0.876***	1.126***	0.326***	0.815***	1.016***
	(0.024)	(0.0998)	(0.132)	(0.0899)	(0.035)	(0.115)	(0.045)	(0.122)	(0.0865)	(0.0141)	(0.150)	(0.020)	(0.010)
rta_eu	-0.0454	0.715***	0.803***	0.357***	1.714****	-0.131	0.599***	0.520***	0.275***	0.404***	0.138***	0.659***	0.151***
	(0.467)	(0.054)	(0.051)	(0.037)	(0.049)	(0.027)	(0.031)	(0.176)	(0.164)	(0.172)	(0.070)	(0.117)	(0.133)
Col	-0.196	0.237***	1.655***	0.238*	1.337***	0.494***	0.991***	0.896***	0.678***	0.599***	0.00427	0.476***	0.428***
	(0.156)	(0.179)	(0.179)	(0.137)	(0.133)	(0.193)	(0.116)	(0.144)	(0.111)	(0.129)	(0.134)	(0.123)	(0.126)
MFN_Tarrif	-0.000999	-0.00995	-0.00245	-0.0160***	-0.0133	-0.00383	-0.00961	-0.00482	-0.00517	-0.0227***	-0.00495	-0.00141	-0.000906
	(0.012)	(0.662)	(0.455)	(0.609)	(0.901)	(0.571)	(0.746)	(0.494)	(0.655)	(0.167)	(0.151)	(0.571)	(0.320)
Constant	-15.72	-8.747***	-11.10***	-7.399***	-15.50***	-6.925***	-5.429***	-9.768***	-7.766***	-3.225***	-9.222***	-10.66***	-12.47***
	(1.116)	(1.117)	(0.884)	(0.687)	(1.119)	(0.857)	(1.251)	(1.285)	(0.703)	(0.918)	(0.788)	(1.006)	(0.717)
Observations	13,983	19,366	5,055	3,287	13,077	5,705	5,171	12,028	5,693	12,125	3,173	14508	20449
R-squared	0.967	0.997	1.000	0.985	0.997	0.987	0.976	0.991	0.975	0.960	0.996	0.967	0.991
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Own's elaboration of PPML gravity Model estimations based original source and ATU database, 2010

Table 3.7 Baseline Comparative Scenario PPML Estimation Exports from Agadir_4 to E.U. introducing 3 Clusters

Variables	cluster_1 Total Exports	cluster_2 Total Exports	cluster_3 Total Exports
lngdp_i	0.503***	0.501***	0.498***
	(0.0254)	(0.0269)	(0.0256)
lngdp_j	0.449***	0.470***	0.467***
	(0.0302)	(0.0326)	(0.0316)
Lndistw	-1.0504	-1.0446	-1.0341
	(0.0810)	(0.0888)	(0.0876)
Contig	1.182***	1.052***	1.110***
	(0.065)	(0.074)	(0.067)
Comlang	0.714***	0.838***	0.803***
	(0.018)	(0.029)	(0.023)
rta_eu	1.243***	1.472***	1.461***
	(0.181)	(0.199)	(0.189)
Col	0.900***	1.032***	1.015***
	(0.053)	(0.063)	(0.065)
clus1	4.266***		
	(0.046)		
clus2		-1.174***	
		(0.064)	
clus3			0.626***
	-0.0045		
	(0.890)		(0.107)
			-
Constant	-9.020***	-5.171***	5.389***
	(1.077)	(0.785)	(0.720)
Importers FE	Yes	Yes	Yes
Exporter FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes
Observations	156,155	156,155	156,155
R-squared	0.862	0.822	0.821

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Own's elaboration of PPML gravity Model estimations based original source and ATU database, 2010

3.6 Alternative Impact Evaluation Approaches:

Testing Pan-Euro Diagonal RoO on Sector Specific Exports for Treatment Groups I and II

After considering the preliminary investigation derived from descriptive, cluster analysis and benchmark PPML estimation results, the next stage is to apply treatment with Pan-Euro diagonal RoO. More specifically we want to evaluate the two main groups of treatment and their counterfactual (i.e equally comparative two control groups) in all aspects but treatment.

- **Treatment Group I:** composed of 50 countries applying Pan_Euro Diagonal RoO to include RoW[123] applicants of Pan-Euro RoO
- **Treatment Group II:** which includes Agadir_4 and E.U. countries at a total of 30 countries
- **Control Group I:** composed of 50 countries outside the Pan-Euro Diagonal RoO rest of RoW and they are chosen by Nearest Neighboring analysis
- **Control II:** Choosing four countries from MENA region [Lebanon, Libya, Algeria, Syria][124] and 26 E.U. countries

The methodology used to measure accurately each treatment group's exports (final + intermediate) responsiveness towards the introduction of Pan-Euro diagonal RoO as a public policy approach at this phase was performed through '**Double Differences Estimation**'[125] (DID) and the methodology for DID is explained in the next section.

3.6.1 Theoretical Foundation: Difference in Difference Estimations and Methodology:

Double Differences Estimation (DID) has served as convenient instrument in many investigations and precisely to evaluate the impact of public policies on specific economic variables (Bertrand, Duflo and Mullainathan, 2003). This estimation approach identifies a specific intervention policy applied to one of the two relatively comparative groups in all aspects except for the application phase of the policy This approach has rigorously been used in trade topics for the assessment of PTA's, application of trade policies and RoO cumulation systems for some European countries as motivated by the literature (Hendersen and Millimet, 2004; Kheir El Din and Gohenim, 2005; Cadot and Melo, 2007; FEMISE[126] Research Centre, 2007; Augier, Gasoriek and Lai Tong, 2008; Millimet and Tchernis ,2009; Jurše and Logoižar and Vide,2010; Gauto, 2012)

[123] Pan-Euro RoO includes some of other countries that are outside Europe and Mediterranean Chile, US, China, Canada and Australia.

[124] The control group II was chosen with 4 countries [Lebanon, Libya, Algeria, Syria] members of bilateral PTA with E.U. countries, however they are still non-members Pan-Euro diagonal RoO and some of them are candidates to enter the Agadir Association Agreement.

[125] Difference in Difference Estimation (DID) known as Double Differences: One of the famous examples for the application of public policies intervention such as social insurance; as a means of raising unemployment insurance benefits to citizens in need. It is applied on a specific population; where treated citizens are eligible for insurance and are classified as treatment group versus an equivalent group equal to the latter in all aspects with exception that it is not subject to the treatment and known as (control group). The difference between both groups demonstrates how this policy provoked changes in the unemployment duration for residents (Bertrand, Duflo and Mullainathan, 2003)

[126] FEMISE research centre: Centre of Planning and Economic research for Mediterranean countries.

Accordingly, the next step, we will identify the reasoning and parameters used to define treatment and control groups which will be subject to treatment with Pan-Euro diagonal RoO. This estimation method is supposed to align two comparative groups in all aspects except for the application of Pan-Euro Diagonal RoO.

3.6.2 Identifying Treatment Groups I and II

We can gain insight from Table 3.8 summarizing the mathematical intuition behind the DID approach for both treatment groups over two equal time intervals. Time is denoted by (P) in the model and period (0) covers years 2000 to 2005 and labelled as ex. ante 2006, meanwhile, period 1 continues onwards from 2005 to 2010 and is known by post 2006 (P). The treated group is assigned the notation (D) and the (Interaction) variable combining between treatment and time appears and is labelled as (DP). This interaction term captures the cross effect of treatment and time together, when applying PECS diagonal RoO and it is the crucial term in determining impact of Pan-Euro RoO adoption.

The general econometric equation applying DID approach is known accordingly:

$$Є(Flow_{it},D,P) = \exp(\beta_0+\beta_1 X_1+\beta_2 D+\beta_3 P+\beta_4 D\,P+ \varepsilon) \quad \text{.....} \quad \text{Eq. (3.3)}$$

($\boldsymbol{\beta_2 D}$): assigned for treatment term with (D) signaling to treatment with diagonal RoO

($\boldsymbol{\beta_3}$P): given to period term with (P) covering time periods 0 and 1

($\boldsymbol{\beta_4}$D P): interaction term with DP combining between together treatment

Table 3.8: Mathematical Derivation and Theoretical Foundation of the Double Differences Approac

RoO Treatment Dummy =	**1:** if country pertains to treatment group	
	0: if country pertains to control group	
Time period for Treatment Dummy =	**1:** If period within interval [2006-2010]	
	0: if period within interval [2001-2005]	
Average Treatment for Treated Group (T.A[127]) After	Treatment=**1** & After 2006=**1**	Є (Y_{it}, D=1, P=1) = exp($\beta_0+\beta_1 X_1+\beta_2.1+\beta_3.1+\beta_4.1+ \varepsilon$) =exp ($\beta_0+\beta_1 X_1+\beta_2+\beta_3+\beta_4+ \varepsilon$) …. (I)

	Treatment=**1**& Before 2006=**0**	Є (Y_{it},D=1, P=0) = exp (β_0+$\beta_1 X_1$+β_2.1 + ε) = exp (β_0+$\beta_1 X_1$+β_2 + ε)
(T.B[128]) Before		….. (II)
ATT=$\frac{\mathbf{T.A-T.B}}{\mathbf{T.B}}$	$\frac{\exp(\beta_0+\beta_1 X_1+\beta_2+\beta_3+\beta_4+\varepsilon)-\exp(\beta_0+\beta_1 X_1+\beta_2+\varepsilon)}{\exp(\beta_0+\beta_1 X_1+\beta_2+\varepsilon)}$ = exp ($\beta_3+\beta_4$) − 1 .. (III)	
Average Treatment for Control Group (C.A[129]) After	Control= **0** & After 2006= 1	Є (Y_{it}, D=0, P=1) = exp (β_0+$\beta_1 X_1$+β_3+ ε) ...(IV)
(C.B[130]) Before	Control=**0** & Before 2006=**0**	Є (Y_{it}, D=0, P=0) = exp (β_0+$\beta_1 X_1$+ ε) .. (VI)
ATC= $\frac{\mathbf{C.A-C.B}}{\mathbf{C.B}}$	$\frac{\exp(\beta_0+\beta_1 X_1+\beta_3+\varepsilon)-\exp(\beta_0+\beta_1 X_1+\varepsilon)}{\exp(\beta_0+\beta_1 X_1+\varepsilon)}$ = exp (β_3) − 1 .(VII)	
Average treatment Effect (ATE)	$\left(\frac{\mathbf{T.A-T.B}}{\mathbf{T.B}}\right)-\left(\frac{\mathbf{C.A-C.B}}{\mathbf{C.B}}\right)$ =	

[exp ($\beta_3+\beta_4$) − 1]- [exp (β_3) − 1]=exp ($\beta_3+\beta_4$) − exp (β_3) = exp(β_4) (VIII) Therefore, the partial change in the elasticity of coefficient$t$ β_4 captures the interaction between treatment and time in the term *(DP)*

3.6.3 Gravity Equation introducing variables for treatment with Pan-Euro RoO:

Refers to Gravity Equation written to estimate final export flows between Agadir_4 and E.U. by using PPML estimator will be iterated with the inclusion of variables to capture for treatment with Pan-Euro diagonal RoO and their impact on final and intermediate sector flows on the two treatment I and II groups defined previously. The first treatment variable dummy used and denoted by ($\boldsymbol{\beta_8^k D_{ij}}$) ; as treatment term ($\boldsymbol{D_{ij}}$) preserves the value 1 and second the time variable dummy will account for

timespan during which the diagonal Pan-Euro RoO are applied and known as $(\boldsymbol{\beta_9^k P_{ij}})$ .Finally the interaction dummy $(\boldsymbol{\beta_{10}^k DP_{ij}})$ variable directly reflecting real treatment effect by capturing the impact of diagonal RoO on sector specific final and intermediate exports. This interaction term is the most crucial coefficient to identify the effect of treatment with Pan-Euro RoO on the export flows. Equation 3.4 will be accordingly:

$$Flow_{ijt}^{k} = [\beta_0^k + \beta_1^k \ln(gpd_{it}) + \beta_2^k \ln(gdp_{jt}) + \beta_3^k \ln(Distw_{ij}) + \beta_4^k contig_{ij} + \beta_5^k Comlang_{ij} + \beta_6^k Col._{ij} + \beta_7^k rta_{ij} + \beta_8^k mfn\ tariff_{ij} + \beta_9^k D_{ij} + \beta_{10}^k P_{ij} + \beta_{11}^k DP_{ij} + \lambda_t + \delta_i + \delta_j + \alpha_k + U_{ijt}]$$

Eq.(3.4)

Where:

$\boldsymbol{Flow_{ijt}^{k}}$**:** reflects the overall impact on bilateral final and intermediate export flows on country i and j resulting after adoption of diagonal Pan-Euro RoO cumulation, for each t time and sector k

α, β, γI, δI: are all coefficients measuring the change terms resulting from diagonal Pan-Euro RoO

t: denotes time before intervention if *t*=0, then period (ex. ante2006) and if t=1, then period (p)is (post 2006).

$\boldsymbol{D_{ij}}$**:** denotes pertinence to treatment group of Pan-Euro diagonal RoO, when D=1 and otherwise D=0

$\boldsymbol{DP_{ij}}$**:** signals to interaction term between treatment (D) and post2006 (P); showing combined effect of both

3.6.4 Identifying Control Groups I and II not Subject to Diagonal RoO:

Equivalently the control group I and II are selected based on the ' **Cluster of Nearest Neighbor Analysis'**[131] which is a classification methodology for matching together cases or individuals with similar characteristics. In our case, we have control group I and II composed of 50 and 30 countries respectively[132]; to be comparable to treatment group I and II. Selecting similar countries for both

[131] Nearest Neighbor Analysis: A method of classifying individuals or observations based on similarity between those individuals in many features and the Euclidean distance is the most common measurement estimate used to evaluate nearest neighbor, based on the fact that similar cases are near each other and dissimilar cases are distant from each other.

[132] 38 control group countries are formed of the following: they are grouped into 38 countries belonging to the three different Free trade areas : Latin American PTA as in CACM, Asian PTA as in ASEAN and finally African PTA's as in AFTA, and their associated countries as in : Kenya, Nigeria, Djibouti, Mauritius, Dominican Republic, Nicaragua, Peru, Swaziland, Lativa, Madagascar, Burkina Faso, Armenia, Lebanon, Malawi, Pakistan, New Zealand, Philippines, Singapore, Sudan, Mozambique, Panama, Senegal, Russian Republic, Colombia, Argentina, Bosnia and Herzegovina, Bahamas, Lithuania, Mauritania, Rwanda, Vietnam, Paraguay

Treatment and Control groups I, the ' Nearest Neighbor Selection Method ' with a set of common characteristics to be matched for both treatment and control among which are (intermediate and export flows, MFN tariff rates, RVC percentages, RTA with other partners than E.U)[133]

Gravity for control group I and II:

$$Flow_{ijt}^{k} = \beta_0^k + \beta_1^k \ln(gdp_{it}) + \beta_2^k \ln(gdp_{jt}) + \beta_3^k \ln(Distw_{ij}) + \beta_4\ Contig_{\ ij} + \beta_5^k Comlang_{ij} + \beta_6^k Col._{ij} \quad + \beta_7^k\ rta_{ij}\ + \beta_8^k mfn\ tariff_{ij} \quad + \beta_9^k C_{ij} + \beta_{10}^k P_{ij} + \beta_{11}^k CP_{ij} + \lambda_t + \delta_i + \delta_j + \alpha_k + U_{ijt}]$$

Eq.(3.5)

Where:

$\boldsymbol{Flow_{ijt}^{k}}$**:** reflects the overall impact on bilateral export or intermediates not exposed to diagonal Pan-Euro RoO cumulation, for each t time and sector k

α, β, γI, δI: are all coefficients measuring the change terms

$\boldsymbol{P_{ij}}$**:** denotes time before intervention if *t*=0, then period (ex. ante2006) and if t=1, then period (p)is (post 2006).

$\boldsymbol{C_{ij}}$**:** denotes pertinence to control group not applying Pan-Euro diagonal RoO, when C=1 and otherwise C=0

$\boldsymbol{CP_{ij}}$**:** signals to interaction term between control (C) and post2006 (P); showing combined effect in case treatment does not take place

[133] Selection of Control groups I & II for by nearest neighbor Analysis: The true advantage of the nearest neighbor selection method is allowing for the inclusion of many countries; especially within the control group I of other preferential trade agreements like CACM, ASEAN, FAFTA and out of the bound of countries applying PECS diagonal RoO. As for Control group II comprised of 31 countries will include 26 European countries, in addition to 4 non- applicants of PECS diagonal RoO similar in all gravity characteristics (i.e. GDPs' origin – destination, cultural background, colonial history and language) to Agadir countries and accordingly control II group will include Sudan, Lebanon, Libya and Algeria.

3.7 Key Results for final and intermediate Exports of Treatment Groups I and II

Table 3.9 PPML: (Treatment Group I _50 for Exports Flows)

Final Exports DID_1 VARIABLES	Beverages	Food Products	Electric Machinery	Furniture	Industrial Chemicals	Leather	Machinery S.P	Other Chemicals	Paper	Scentific Equipment	Medical Equipment	Textiles	Transport Machinery S/P
lngdp_i	0.846***	0.887***	0.955***	0.782***	0.709***	0.924***	0.873***	0.657***	0.822***	0.681***	0.969***	0.800***	0.957***
	(0.0191)	(0.0121)	(0.0609)	(0.0304)	(0.0212)	(0.0197)	(0.0221)	(0.0295)	(0.0153)	(0.0349)	(0.0272)	(0.0176)	(0.0544)
lngdp_j	0.882***	0.776***	0.918**	0.861***	0.549***	0.852***	0.812***	0.760***	0.832***	0.828***	0.978***	0.819***	0.895***
	(0.0206)	(0.0106)	(0.0460)	(0.0228)	(0.0453)	(0.0205)	(0.0259)	(0.0268)	(0.0171)	(0.0291)	(0.0261)	(0.0175)	(0.0387)
lndistw	-1.250***	-0.754***	-0.855**	-0.434***	-1.154***	-0.970***	-1.063***	-0.434****	-0.762***	-0.829***	-1.125***	-0.577***	-0.993***
	(0.0512)	(0.0012)	(0.0762)	(0.0569)	(0.106)	(0.0531)	(0.0622)	(0.0688)	(0.0559)	(0.0999)	(0.0722)	(0.0524)	(0.0921)
contig	0.499***	1.357**	0.327**	0.111*	1.448***	0.805***	0.400**	0.740**	0.698***	0.729***	0.676	0.880***	0.173
	(0.023)	(0.034)	(0.158)	(0.151)	(0.025)	(0.035)	(0.170)	(0.163)	(0.111)	(0.021)	(0.211)	(0.123)	(0.174)
Comlang	0.824***	0.816***	0.276***	0.799**	1.270***	0.382**	0.911**	0.772**	0.876***	1.126***	0.326*	0.815**	1.016***
	(0.0899)	(0.0099)	(0.0998)	(0.132)	(0.035)	(0.115)	(0.145)	(0.122)	(0.0865)	(0.041)	(0.150)	(0.110)	(0.007)
rta_eu	0.357*	-0.045***	0.715***	0.803**	1.714***	-0.131	0.599**	0.520**	0.275**	0.404**	0.138	0.659***	0.151
	(0.137)	(0.013)	(0.054)	(0.151)	(0.024)	(0.127)	(0.131)	(0.176)	(0.164)	(0.172)	(0.170)	(0.071)	(0.133)
Col	1.238***	0.196**	0.237***	1.655***	1.337***	0.494*	0.991**	0.896**	0.893**	0.599**	0.00427	0.476**	0.428**
	(0.037)	(0.137)	(0.079)	(0.019)	(0.033)	(0.193)	(0.036)	(0.144)	(0.111)	(0.129)	(0.280)	(0.123)	(0.126)
MFN_Tarrif	-0.000999	-0.00995	-0.00245	-0.0160***	-0.0133	-0.00383	-0.00961	-0.00482	-0.00517	-0.0227***	-0.00495	-0.00141	-0.000906
	(0.012)	(0.662)	(0.455)	(0.609)	(0.901)	(0.571)	(0.746)	(0.494)	(0.655)	(0.167)	(0.151)	(0.571)	(0.320)
treatment (D)	-0.750*	-0.0315	-0.479**	-0.282**	0.00990	-0.462***	-0.353**	-0.383**	-0.501*	-0.899***	-1.017***	-0.525*	-0.535*
	(0.129)	(0.029)	(0.149)	(0.141)	(0.201)	(0.0984)	(0.121)	(0.176)	(0.107)	(0.027)	(0.016)	(0.123)	(0.109)
post2006 (P)	-1.070**	-1.341***	-0.0294	-0.891**	-0.747*	-0.277	-0.712**	-0.515*	-0.505**	-1.342***	-0.764**	-3.817***	-0.600*
	(0.0206)	(0.006)	(0.231)	(0.420)	(0.398)	(0.200)	(0.034)	(0.188)	(0.015)	(00.35)	(0.325)	(0.0039)	(0.196)
interaction (DP)	0.952***	0.739***	-0.177	1.287***	1.022***	0.152	0.499	1.425***	0.377*	1.406***	1.055***	4.151***	0.472
	(0.0214)	(0.024)	(0.306)	(0.0436)	(0.047)	(0.210)	(0.360)	(0.036)	(0.174)	(0.0407)	(0.0343)	(0.003)	(0.200)
Constant	-7.399***	-15.72***	-8.747***	-11.10***	-15.50***	-6.925***	-5.429***	-9.768***	-7.766***	-3.225***	-9.222***	-10.66***	-12.47***
	(0.687)	(0.687)	(1.117)	(0.884)	(1.119)	(0.857)	(1.251)	(1.285)	(0.703)	(0.918)	(0.788)	(1.006)	(0.717)
Observations	27,287	39,983	26,366	32,055	22,077	25,705	30,171	25,028	27,693	32,125	25,173	30,508	30,449
R-squared	0.985	0.967	0.997	1.000	0.997	0.987	0.976	0.991	0.975	0.960	0.996	0.967	0.991
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

standard Errors in Parenthesis are
*** p<0.01, ** p<0.05, * p<0.1

Own's elaboration of PPML gravity Model estimations based on original source and ATU database 2010.

3.7.1 Results for Treatment Group I of Final Exports

Above all it is important to mention that throughout all Equations, the basic coefficients for gravity variables lngdp_i, lngdp_j, lndistw, Comlang, Col, Contig show the expected signs, magnitude and significance for RoO treatment group I, having Pan-Euro 50 membership for final export flows. Year, exporter, importer and sector fixed effects $\boldsymbol{\lambda_t, \delta_i \delta_j, \alpha_k}$ were added to account for unobserved heterogeneity across individuals and at the same time it prevented the omission of relevant information from the double differences estimation. In our context of evaluating the impact of Pan-Euro RoO fixed

effects are also essential to control for 'Reverse Causality'[134] between exports flows and the entrance into Pan-Euro RoO. Apart from this, the rest of the analysis is dedicated to show the responsiveness of the treatment and interaction terms in determining the impact of entry into Pan-Euro RoO on export flows. The treatment dummy with Pan-Euro RoO has always shown negative and partially significant coefficients across all sectors, which is in line with the literature estimations for Augier and Gasiorek and Lai-Tong (2007). As for the interaction variable $(\boldsymbol{\beta_{10}^{k}} \boldsymbol{DP_{ij}})$ demonstrated in Eq. (3.4) and Table 3.9; which results from the multiplication of both the effect of treatment by time of adoption, it has shown remarkable influence on increasing final export flows between the 50 countries adopting Pan-Euro RoO across 9 out of the 13 sectors. The coefficients for treatment are positive ones and highly significant. All significant sectors contributed directly to increase the group's final exports on an average factor of 4.35 (=exp [1.45]). The same exercise was replicated again by putting the three clusters derived during the Cluster analysis to estimate impact of treatment with Pan-Euro diagonal RoO for clusters. As for Petrochemical cluster, it was composed of Industrial Chemicals and Other Chemicals and it contributed to final exports after treatment by an average factor of 4.05 points at (=exp [1.2235]) and finally Machinery Spare Parts cluster encompassed Transport, Scientific and Medical Equipment components and spare parts came in second position and recorded a factor of 3.4 (=exp [2.29]).

3.7.2 Results for Treatment Group I of Intermediate Exports

As for intermediates export flows of treatment group I of 50 countries demonstrated Table 3.10, the interaction coefficient had shown a lower average factor of 2.8 (=exp [1.04]) across 8 out of 13 sectors; meaning that one point increase in the interaction term measuring treatment and time, will induce an increase in intermediate export flows between the 50 Pan-Euro RoO applicant members. This effect was precisely highly significant for the following sectors: Leather, Rubber Products, Plastics, Industrial Chemicals, Petroleum Refineries, Transport, Machinery and Scientific Equipment Spare Parts. The treatment feature with Pan-Euro diagonal RoO and its permissiveness has already increased the margin RVC to be processed in the intermediates exports as also suggested by Bombarda and Gamberoni (2009). Those results are standard to the same results driven by Gosiorek, Augier and Tong (2007) and Estevadeordal and Suominen (2004) on the increase in intermediate export flows for European Free Trade Area, when Pan-Euro diagonal RoO are applied

[134] 'Reverse Causality': We mean by reverse causality here that final and intermediate export flows already existing between Agadir_4 to E.U. might have been the reason behind provoking the entrance of their countries under the membership of Pan-Euro diagonal RoO protocols and not vice versa.

Table 3.10 PPML: (Treatment Group I for estimating Intermediate Exports)

Intermed. VARIABLES	Beverages	Food Products	Furniture	Industrial Chemicals	Leather	Machinery Spare Parts	Rubber Products	Other Chemicals	Petroluem Refineries	Scientific Equipment	Textiles	Transport Machinery S.P
lngdp_i	0.990***	0.831**	0.934***	0.992**	0.988**	0.905***	0.854***	-0.00341	0.998**	1.016**	0.870***	0.991**
	(0.023)	(0.0205)	(0.0199)	(0.0242)	(0.0344)	(0.0194)	(0.0161)	(0.00465)	(0.0280)	(0.0270)	(0.0153)	(0.0376)
lngdp_j	0.946***	0.907**	0.813***	0.890***	0.959***	0.892***	0.892***	1.016***	0.899***	0.990***	0.921***	1.056***
	(0.025)	(0.0227)	(0.0163)	(0.0266)	(0.0283)	(0.0205)	(0.0226)	(0.00622)	(0.0489)	(0.0245)	(0.0186)	(0.0376)
lndistw	-0.956***	-0.786**	-0.825**	-0.571*	-0.922*	-0.792**	-0.767**	-0.0932	-0.613*	-0.850*	-0.797**	-0.888*
	(0.031)	(0.0585)	(0.0481)	(0.0981)	(0.0784)	(0.0513)	(0.0508)	(0.0207)	(0.112)	(0.0664)	(0.0480)	(0.0815)
contig	0.664***	0.704**	0.207**	1.116***	0.709***	0.642***	0.853**	0.127***	1.540***	0.683**	0.786**	0.833**
	(0.023)	(0.137)	(0.119)	(0.016)	(0.130)	(0.188)	(0.148)	(0.0914)	(0.029)	(0.164)	(0.112)	(0.0228)
Comlang	1.168***	0.868**	0.265**	0.710**	0.454***	1.198***	0.526***	0.103***	1.061***	1.201***	0.546**	0.678**
	(0.034)	(0.0907)	(0.0975)	(0.118)	(0.153)	(0.022)	(0.0969)	(0.0306)	(0.015)	(0.012)	(0.0939)	(0.165)
rta_eu	0.357*	-0.045***	0.715***	0.803**	1.714***	-0.131	0.599**	0.520**	0.275**	0.404**	0.138	0.659***
	(0.137)	(0.013)	(0.054)	(0.151)	(0.024)	(0.127)	(0.131)	(0.176)	(0.164)	(0.172)	(0.170)	(0.071)
Col	0.810***	0.168*	0.324**	0.185*	1.061***	0.314**	0.136*	0.148***	0.206**	0.428**	0.106*	0.830***
	(0.09)	(0.125)	(0.079)	(0.158)	(0.025)	(0.178)	(0.153)	(0.0498)	(0.078)	(0.171)	(0.116)	(0.0234)
MFN_Tarrif	-0.000999	-0.00995	-0.00245	-0.0160***	-0.0133	-0.00383	-0.00961	-0.00482	-0.00517	-0.0227***	-0.00495	-0.00141
	(0.012)	(0.662)	(0.455)	(0.609)	(0.901)	(0.571)	(0.746)	(0.494)	(0.655)	(0.167)	(0.151)	(0.571)
treatment (D)	-0.125***	-0.489**	-0.133	-0.177	-0.884***	-0.223**	-0.955**	-0.143***	-0.0359	-0.666***	-0.699***	-1.269***
	(0.003)	(0.111)	(0.118)	(0.137)	(0.089)	(0.115)	(0.124)	(0.0309)	(0.138)	(0.045)	(0.0956)	(0.0125)
post2006 (P)	-0.268	-0.416*	-1.035***	-0.512*	-0.715	-0.682***	-1.123***	-0.0485	-1.013***	-1.745***	-1.112***	-0.126
	(0.267)	(0.140)	(0.108)	(0.196)	(0.447)	(0.149)	(0.136)	(0.138)	(0.155)	(0.125)	(0.117)	(0.2337)
interaction (DP)	0.025	0.488**	0.370	1.076***	1.372***	0.183	1.162***	0.136	1.162***	1.110***	0.654**	1.402***
	(0)	(0.023)	(0.311)	(0.019)	(0.005)	(0.483)	(0.0127)	(0.130)	(0.0145)	(0.0135)	(0.422)	(0.0036)
Constant	-15.75	-8.059***	-7.963***	-13.43***	-10.95***	-12.92***	-8.896***	-12.16***	-12.01***	-9.021***	-10.60***	-13.66***
	(0.524)	(0.708)	(0.662)	(1.526)	(1.453)	(0.874)	(0.695)	(0.289)	(1.083)	(0.711)	(0.875)	(1.628)
Observations	27,287	39,983	26,366	32,055	22,077	25,705	30,171	25,028	27,693	32,125	25,173	30,508
R-squared	0.990	0.991	0.994	0.956	0.990	0.997	0.978	0.977	0.998	0.971	0.980	0.999
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

standard Errors in Parenthesis are
*** p<0.01, ** p<0.05, * p<0.1

Own's elaboration of PPML gravity Model estimations based on original source & ATU database, 2010

3.7.3 Results Treatment Group II for Final Exports

To obtain more in-depth results for the smaller treatment group II consisting of Agadir_4 and their final export flows to E.U illustrated by Table 3.11, the PPML estimation with Pan-Euro RoO treatment found out that the number of sector having partially significant coefficients have increased to 11 out of 13 sectors, with most of the sectors concentrated in Petrochemicals and consumer non-durables and then came last machinery spare-parts, as they recorded an average factor of 2.72 (=exp[1.0026]). The results for petrochemical sector across all estimations has shown robustness in (Descriptive analysis. Cluster analysis, treatment group I and treatment group II), as they maintained their significance to capture most of final export flows between Agadir_4 and E.U. countries; especially when they are treated with Pan-Euro diagonal RoO. The results also suggested that Pan-Euro diagonal RoO succeeded in increasing export flows across many sectors for more than 2.5 times than before the inception of Pan-Euro RoO. It is true that the results were not equally significant along all sectors, but only a few sectors between Agadir_4 to E.U. that lagged in significance for some categories of machinery spare parts and less categories of petrochemicals, which suggested that some of the adoption schemes do not yet have strong impacts on increasing export flows intensity between Agadir and E.U. countries, given also that Pan-Euro RoO is a relatively new scheme. (Estevadeordal, Harris and Suominen, 2007).

Table 3.11 PPML: Treatment Group II for Exports Agadir_4 to E.U.

VARIABLES Export Flows	Food Products	Electric Machinery	Furniture	Rubber Products	Industrial Chemicals	Leather	Machinery S.P	Other Chemicals	Paper	Scentific Equipment	Medical Equipment	Textiles	Transport Equipment
lngdp_i	0.887***	0.955***	0.782**	0.846***	0.709***	0.924***	0.873**	0.657**	0.822***	0.681**	0.969**	0.800***	0.957**
	(0.0321)	(0.0273)	(0.0304)	(0.0191)	(0.0212)	(0.0197)	(0.0221)	(0.0295)	(0.0153)	(0.0349)	(0.0272)	(0.0176)	(0.0544)
lngdp_j	0.776***	0.918***	0.861***	0.882**	0.549***	0.852**	0.812***	0.760**	0.832***	0.828**	0.978**	0.819***	0.895**
	(0.0245)	(0.0460)	(0.0228)	(0.0206)	(0.0453)	(0.0205)	(0.0259)	(0.0268)	(0.0171)	(0.0291)	(0.0261)	(0.0175)	(0.0387)
lndistw	-1.175***	-0.955***	-1.134***	-1.130***	-1.125***	-0.970***	-1.063***	-1.013***	-1.162***	-0.829***	-1.125***	-0.977***	-0.993***
	(0.0459)	(0.0362)	(0.0569)	(0.0512)	(0.0249)	(0.0531)	(0.0422)	(0.0488)	(0.0559)	(0.0999)	(0.0722)	(0.0524)	(0.0521)
contig	1.357***	0.327***	0.111***	0.499*	1.448***	0.805***	0.400***	0.740***	0.698***	0.729***	0.676***	0.880***	0.173***
	(0.0316)	(0.158)	(0.151)	(0.134)	(0.025)	(0.035)	(0.070)	(0.063)	(0.011)	(0.021)	(0.010)	(0.013)	(0.174)
comlang	0.816***	0.276***	0.799*	0.824***	1.270***	0.382***	0.911***	0.772***	0.876***	1.126***	0.326***	0.815***	1.016***
	(0.024)	(0.0998)	(0.132)	(0.0899)	(0.035)	(0.115)	(0.045)	(0.122)	(0.0865)	(0.0141)	(0.150)	(0.020)	(0.010)
rta_eu	-0.0454	0.715***	0.803***	0.357***	1.714****	-0.131	0.599***	0.520***	0.275***	0.404***	0.138***	0.659***	0.151***
	(0.467)	(0.054)	(0.051)	(0.037)	(0.049)	(0.027)	(0.031)	(0.176)	(0.164)	(0.172)	(0.070)	(0.117)	(0.133)
Col	0.196***	0.237***	1.655***	0.238*	1.337***	0.494***	0.991***	0.896***	0.678***	0.599***	0.00427	0.476***	0.428***
	(0.156)	(0.179)	(0.179)	(0.137)	(0.133)	(0.193)	(0.116)	(0.144)	(0.111)	(0.129)	(0.134)	(0.123)	(0.126)
MFN_Tarrif	-0.000999	-0.00995	-0.00245	-0.0160***	-0.0133	-0.00383	-0.00961	-0.00482	-0.00517	-0.0227***	-0.00495	-0.00141	-0.000906
	(0.012)	(0.662)	(0.455)	(0.609)	(0.901)	(0.571)	(0.746)	(0.494)	(0.655)	(0.167)	(0.151)	(0.571)	(0.320)
Treatment (D)	-0.584**	-0.587***	-0.479**	-0.292	-0.459*	-0.547***	-0.417**	-0.588***	-0.459**	-0.605***	-0.377**	-0.594***	-0.535***
	(0.027)	(0.034)	(0.198)	(0.193)	(0.194)	(0.058)	(0.021)	(0.028)	(0.194)	(0.025)	(0.182)	'(0.022)	(0.109)
post 2006 (P)	-0.937**	-0.979***	-0.992	-1.207***	-1.058***	-0.999**	-1.200***	-0.944**	-1.058***	-0.898**	-1.021**	-0.936**	-0.600***
	(0.055)	(0)	(0.234)	(0.128)	(0.238)	(0.050)	(0.021)	(0.031)	(0.238)	(0.024)	(0.0214)	(0.021)	(0.196)
interaction (DP)	1.005**	1.073***	0.869***	0.705**	0.821***	1.012***	0.882*	1.192***	0.821**	1.113***	0.592	0.931***	0.472*
	(0.034)	(0)	(0.024)	(0.074)	(0.087)	(0.026)	(0.051)	(0.028)	(0.071)	(0.043)	(0.431)	(0.053)	'(0.100)
Constant	-15.72	-8.747***	-11.10***	-7.399***	-15.50***	-6.925***	-5.429***	-9.768***	-7.766***	-3.225***	-9.222***	-10.66***	-12.47***
	(1.116)	(1.117)	(0.884)	(0.687)	(1.119)	(0.857)	(1.251)	(1.285)	(0.703)	(0.918)	(0.788)	(1.006)	(0.717)
Observations	13,983	19,366	5,055	3,287	13,077	5,705	5,171	12,028	5,693	12,125	3,173	14,508	20,449
R-squared	0.967	0.997	1.000	0.985	0.997	0.987	0.976	0.991	0.975	0.960	0.996	0.967	0.991
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

standard Errors in Parenthesis are
*** p<0.01, ** p<0.05, * p<0.1

Own's elaboration of PPML gravity Model estimations based on original source & ATU database

3.7.4 Results Treatment Group II for Intermediate Exports:

Finally, when we come to look at the results of Agadir_4 intermediate exports to E.U. on Table 3.12 after the Pan-Euro RoO were applied, we found that almost all coefficients had shown a high level of significance but not very high coefficients. This shows that one point increase in treatment with Pan-Euro diagonal RoO , led to an increase in intermediate exports that reached a factor of 1.8 (exp [1.033]-1) for Leather sector, 0.32 at (exp [0.2.84]-1) for rubber products and 0.30 at (exp [0.267]-1) for furniture. Although data for descriptive analysis has shown the intensity of intermediate export flows between Agadir_4 and E.U. since Pan-Euro RoO were adopted in sectors like Rubber Products,

machinery spare parts and other chemicals, however, it has been clear and proven whether RoO helped in intensifying intermediate exports flows for those sectors

Table 3.12 PPML: Treatment Group II intermediate Exports

Intemed. Export VARIABLES	Food Products	Furniture	Industrial Chemicals	Leather	Minerals	Other Chemicals	Paper	Petroleum Refineries	Rubber Products	Medical Equipment S.P	Textiles	Transport Machinery S.P.
lngdp_i	1.001***	0.937***	1.028***	0.914***	0.870***	0.894***	0.807***	0.969***	0.878***	0.998**	1.557***	0.998*
	(0.0401)	(0.0211)	(0.0346)	(0.0208)	(0.0192)	(0.0198)	(0.0149)	(0.0276)	(0.0153)	(0.0277)	(0.016)	(0.0701)
lngdp_j	0.953***	0.803***	0.912***	0.920***	0.943***	0.794***	0.825***	0.881**	0.842***	0.978**	1.261***	0.897**
	(0.0352)	(0.0167)	(0.0280)	(0.0201)	(0.0219)	(0.0153)	(0.0153)	(0.0436)	(0.0193)	(0.0276)	(0.001)	(0.0566)
lndistw	-0.936***	-0.784***	-0.800**	-0.807***	-0.826***	-0.779***	-0.752***	-0.451**	-0.751***	-0.776**	-1.253***	-0.961***
	(0.0349)	(0.0493)	(0.0646)	(0.0435)	(0.0533)	(0.0449)	(0.0487)	(0.100)	(0.0468)	(0.0621)	(0.111)	(0.0967)
contig	0.598**	0.299**	0.994**	0.352	0.102	0.604*	0.934*	1.544**	0.645*	0.900*	0.486	-0.0692
	(0.05)	(0.128)	(0.018)	(0.029)	(0.128)	(0.106)	(0.105)	(0.312)	(0.134)	(0.165)	(0.822)	(0.190)
comlang	0.972***	0.326**	0.829***	0.995***	0.714**	0.264**	0.789**	0.982***	0.586**	1.061*	0.981**	1.094***
	(0.042)	(0.102)	(0.021)	(0.018)	(0.0986)	(0.0853)	(0.0877)	(0.013)	(0.0920)	(0.126)	(0.0296)	(0.017)
rta_eu	0.165	0.176	0.284*	1.821***	0.196	0.229	0.167	0.177	0.183	-0.354*	1.576**	-0.616*
	(0.172)	(0.172)	(0.169)	(0.017)	(0.175)	(0.163)	(0.168)	(0.154)	(0.151)	(0.199)	(0.0413)	(0.160)
Col	0.459***	0.218***	0.836***	0.694**	0.487*	0.104	0.119	0.723***	0.884***	0.510***	0.928***	0.782**
	(0.046)	(0.038)	(0.063)	(0.168)	(0.135)	(0.123)	(0.113)	(0.0314)	(0.130)	(0.0774)	(0.062)	(0.0789)
MFN_Tarrif	-0.000999	-0.00995	-0.00482	-0.0160***	-0.00034*	-0.00383	-0.00961	-0.00051	-0.00517	-0.0227***	-0.00141	-0.000906
	(0.012)	(0.662)	(0.494)	(0.609)	(0.435)	(0.571)	(0.746)	(0.765)	(0.655)	(0.167)	(0.571)	(0.320)
treatment (D)	-0.812***	-0.425***	-0.740***	-0.940***	-0.941**	-0.227**	-0.332**	0.839***	-0.569**	-0.0192	-0.0513	-0.0294
	(0.0708)	(0.0755)	(0.0712)	(0.023)	-0.0782	(0.0725)	(0.0767)	(0.0396)	(0.0758)	(0.0776)	(0.0723)	(0.0775)
post2006 (P)	-0.0485	-0.108	-0.105	-2.146	-0.118	-0.109	-0.0630	-0.0729	-0.0906	-0.111	0.0327	0.00331
	(0.184)	(0.182)	(0.182)	(0)	(0.186)	(0.175)	(0.181)	(0.168)	(0.167)	(0.186)	(0.164)	(0.178)
interaction (DP)	0.339**	0.267***	0.250*	1.033***	0.288*	0.284*	0.289*	0.307***	0.284***	0.295*	0.259*	0.295*
	(0.092)	(0.056)	(0.098)	(0.011)	(0.101)	(0.0986)	(0.103)	(0.032)	(0.048)	(0.102)	(0.089)	(0.094)
Constant	-13.03***	-12.77***	-12.66***	-7.097	-12.67***	-13.39***	-12.81***	-14.73***	-14.87***	-13.11***	-13.09***	-13.28***
	(0.579)	(0.625)	(0.521)	(0)	(0.563)	(0.573)	(0.554)	(0.553)	(0.560)	(0.498)	(0.486)	(0.610)
Observations	13,953	5,055	13,077	5,705	4,453	12,028	5,693	4,565	3,287	3,173	14,,508	20.449
R-squared	0.968	0.969	0.964	0.997	0.969	0.969	0.968	0.969	0.968	0.969	0.967	0.967
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses
***** p<0.01, ** p<0.05, * p<0.1**

Own's Elaboration of PPML gravity Model estimations based on original source & ATU database 2010

3.7.5 Comparative Results for Control Groups I and Control group II

Control groups I & II as non-applicants of PECS diagonal RoO, with their results demonstrated in Tables 3.13 and Table 3,14; both exhibited lower partial increase and significance in their coefficients of sector specific final exports compared to those obtained through treatment groups I and II for both Control I (50 countries comparative to Pan-Euro applicants) known as non- applicants of Pan-Euro diagonal RoO. Only half of sectors approximately 5 of 12 had shown partial significance especially appearing for elements of cluster3 of Machinery and Equipment components and spare-parts, industrial chemicals, other chemicals and textiles compared to treatment group I when exposed to treatment with

Pan-Euro RoO. This might suggest that it may be due to the nature of the sector. For some sectors, regardless the RoO scheme applied, they are still expected to have higher export intensity due to other omitted variables or the political interest dimension, of some industry groups designing agreements to fit their exports framework and interest of their sectors, as emphasized in regions from the studies developed by Duttagupta and Panagariya (2003) and Chase (2008).

On the other hand, **Control group II** is equal to almost all aspects of significance to treatment group I in the number of sectors and flows. As well both treatment group II and Control group II have the same level of significance regarding the gravity's economic size, inverse impact of distance on increasing trade barrier and decreasing export flows and even in terms of cultural common language ties and rta to E.U. The only substantial difference this time, is the interaction term which has seen to show no significance at all for all sectors under scrutiny. In consequence, this shows that bilateral normal lower tariff rates between E.U. and other comparative countries due to the PTA between E.U. and rest of Mediterranean members that are not part of the Pan-Euro diagonal RoO , will not yield the same impact on the export flows and increase intensity of flows nor cause a significant change in the composition and structure of exports , as in the case of applying Pan-Euro diagonal RoO.

The treatment premium (difference in coefficients between treatment and control groups) obtained from the average coefficients of all sectors for the treatment, time and interaction terms is almost a premium of 3 times at high degrees of partial significance. The worse off results were evident for smaller control group II exports to E.U formed of the 4 countries mentioned earlier and 26 E.U. countries. Summarizing key results between treatment group II of Agadir 4 to E.U. compared to the 4 other countries of control group II. The difference between treatment and control groups II of interest was calculated by the difference in means between the two groups which was distant from zero. The null hypothesis H_0 =0 was refused against the alternative $H_a \neq 0$ with a significant increase of 58% growth for Agadir_4's final exports to E.U, since the onset of both Agadir agreement together with adoption of Pan-Euro diagonal RoO; which came to the benefit of smaller association agreements such as Agadir

Table 3.13 PPML: Control Group I for final exports

Control Exports VARIABLES	Beverages	Food Products	Furniture	Industrial Chemcials	Leather	Machinery Spare Parts	Other Chemcials	Paper	Scientific Equipment	Medical Equipment	Textiles	Transport Equipment S.I
lngdp_i	1.003***	0.882***	0.929***	1.059***	0.926**	0.895**	0.903***	0.912***	0.914***	0.916**	0.887***	1.008*
	(0.0213)	(0.0193)	(0.0194)	(0.0475)	(0.0206)	(0.0252)	(0.0193)	(0.0266)	(0.0183)	(0.0278)	(0.0160)	(0.0679)
lngdp_j	0.943***	0.908***	0.812****	0.879***	0.934***	0.923***	0.844***	0.843***	0.818***	0.858**	0.903***	0.951***
	(0.0213)	(0.0208)	(0.0156)	(0.0301)	(0.0207)	(0.0300)	(0.0161)	(0.0241)	(0.0180)	(0.0262)	(0.0183)	(0.0617)
lndistw	-0.955***	-0.835***	-0.812***	-0.802***	-0.840***	-0.882***	-0.791***	-0.828***	-0.861***	-0.812*	-0.912***	-0.967***
	(0.0451)	(0.0517)	(0.0438)	(0.0627)	(0.0452)	(0.0804)	(0.0439)	(0.0686)	(0.0433)	(0.0741)	(0.0448)	(0.0927)
contig.	0.551***	0.192**	0.160**	0.744**	0.259	0.592	0.519**	0.528**	0.404*	0.613*	0.662*	-0.0826
	(0.148)	(0.127)	(0.120)	(0.194)	(0.218)	(0.206)	(0.103)	(0.043)	(0.0878)	(0.059)	(0.122)	(0.181)
ComLang.	1.026***	0.675**	0.244**	0.792**	1.040***	0.851***	0.367**	0.696***	0.696*	0.747**	0.542***	1.178***
	(0.078)	(0.0979)	(0.0982)	(0.056)	(0.022)	(0.07)	(0.0843)	(0.063)	(0.117)	(0.05)	(0.0882)	(0.017)
rta-eu	-0.15	-0.0893	0.570*	1.166**	-0.143	0.0594	0.356*	1.517***	0.758**	1.419***	0.792**	0.493*
	(0.234)	(0.161)	(0.106)	(0.023)	(0.166)	(0.220)	(0.124)	(0.218)	(0.028)	(0.233)	(0.065)	(0.196)
Col	0.438*	0.820*	0.283*	0.427*	0.105	0.203	0.151	0.378*	0.597**	0.421*	0.872***	-0.553*
	(0.167)	(0.127)	(0.226)	(0.169)	(0.175)	(0.266)	(0.121)	(0.126)	(0.154)	(0.081)	(0.027)	(0.161)
MFN_Tarrif	-0.000999	-0.00995	-0.00245	-0.0160***	-0.0133	-0.00383	-0.00961	-0.00482	-0.00517	-0.0227***	-0.00495	-0.00141
	(0.012)	(0.662)	(0.455)	(0.609)	(0.901)	(0.571)	(0.746)	(0.494)	(0.655)	(0.167)	(0.151)	(0.571)
Control (C)	0.102	0.427*	-0.0192	0.353	0.301*	0.249	0.0458	-0.188	0.265*	-0.147	-0.135	0.178
	(0.112)	(0.149)	(0.172)	(0.232)	(0.177)	(0.164)	(0.116)	(0.119)	(0.119)	(0.130)	(0.149)	(0.166)
Postc2006 (P)	0.292	0.186	0.649*	1.276**	0.0425	-0.0238	0.189	1.514***	0.808*	1.387***	0.578*	0.145
	(0.125)	(0.190)	(0.155)	(0.027)	(0.185)	(0.260)	(0.142)	(0.210)	(0.158)	(0.225)	(0.180)	(0.241)
Interaction (CP)	0.103	0.215	0.238	0.439***	-0.249	0.454***	0.319***	0.0516	0.0341	0.114	0.761***	0.454**
	(0.198)	(0.182)	(0.207)	(0.048)	(0.225)	(0.039)	(0.071)	(0.156)	(0.163)	(0.167)	(0.021)	(0.196)
Constant	-14.21	-9.773***	-8.922***	-11.11***	-11.79***	-11.40***	-11.20***	-12.04***	-9.026***	-12.36***	-10.22***	-13.00***
	(0.789)	(0.569)	(0.662)	(1.513)	(0.848)	(1.386)	(1.176)	(0.961)	(0.614)	(0.959)	(0.800)	(0.883)
Observations	27,287	39983	26,366	32,055	22,077	25,705	30,171	27,693	25,028	12,125	27,693	32,125
R-squared	0.992	0.996	0.995	0.964	0.996	0.996	0.994	0.567	0.995	0.511	0.985	0.995
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard Errors in Parenthesis are
*** p<0.01, ** p<0.05, * p<0.1

Own's elaboration of PPML gravity Model estimations based on the original source & ATU database 2010

Table 3.14 PPML: Control Group II for final exports

Control II Export Flows VARIABLES	Food Products Exports	Furniture Exports	Industrial Chemicals Exports	Leather Exports	Minerals Exports	Other Chemicals Exports	Paper Exports	Petroleum Refineries Control Exports	Rubber & Plas. Products Exports	Medical Equipment Exports	Textiles Exports	Transport Machinery S.P. Exports
lngdp_i	0.929***	0.919***	0.938***	0.929***	0.910***	0.938***	0.912***	0.916***	0.923***	0.916***	0.913***	0.924***
	(0.0287)	(0.0304)	(0.0331)	(0.0287)	(0.0274)	(0.0260)	(0.0266)	(0.0267)	(0.0261)	(0.0278)	(0.0259)	(0.0276)
lngdp_j	0.869***	0.829***	0.857***	0.869***	0.850***	0.869***	0.843***	0.857***	0.847***	0.858***	0.844***	0.863***
	(0.0265)	(0.0289)	(0.0252)	(0.0265)	(0.0257)	('0.0244)	(0.0241)	(0.0259)	(0.0251)	(0.0262)	(0.0251)	(0.0263)
lndistw	-0.870***	-0.804***	-0.778***	-0.870***	-0.840***	-0.827***	-0.828***	-0.856***	-0.853***	-0.812***	-0.861***	-0.807***
	(0.0688)	(0.0760)	(0.0681)	(0.0688)	(0.0736)	(0.0669)	(0.0686)	(0.0720)	(0.0703)	(0.0741)	(0.0706)	(0.0715)
contig	0.492*	0.631**	0.613*	0.492*	0.557*	0.689**	0.528**	0.486*	0.555*	0.613*	0.557**	0.597*
	(0.092)	(0.025)	(0.066)	(0.192)	(0.204)	(0.057)	(0.043)	(0.093)	(0.186)	(0.059)	(0.052)	(0.066)
ComLang	0.726**	0.539*	0.734**	0.726*	0.704*	0.655*	0.696**	0.754*	0.675*	0.747**	0.714**	0.778**
	(0.025)	(0.067)	(0.045)	(0.115)	(0.111)	(0.074)	(0.06)	(0.113)	(0.116)	(0.05)	(0.032)	(0.023)
rta_e.u	1.349***	1.467***	1.475***	1.349***	1.411***	1.456***	1.517***	1.397***	1.371***	1.419***	1.221***	1.458***
	(0.216)	(0.220)	(0.208)	(0.216)	(0.236)	(0.236)	(0.218)	(0.229)	(0.227)	(0.233)	(0.210)	(0.230)
Col	0.399**	0.342*	0.403*	0.399*	0.425*	0.238*	0.378*	0.381*	0.387*	0.421*	0.485**	0.325*
	(0.054)	(0.077)	(0.123)	(0.134)	(0.127)	(0.136)	(0.126)	(0.141)	(0.131)	(0.081)	(0.059)	(0.134)
MFN_Tarrif	-0.000999	-0.00995	-0.00245	-0.0160***	-0.0133	-0.00383	-0.00961	-0.00482	-0.00517	-0.0227***	-0.00495	-0.00141
	(0.012)	(0.662)	(0.455)	(0.609)	(0.901)	(0.571)	(0.746)	(0.494)	(0.655)	(0.167)	(0.151)	(0.571)
Control (C)	-0.114	-0.127	-0.171	0.00204	0.00158	0.0396	-0.188	-0.170	0.0016	-0.147	-0.188	-0.189
	(0.131)	(0.130)	(0.120)	(0.0599)	(0.0643)	(0.120)	(0.119)	(0.132)	(0.063)	(0.130)	(0.126)	(0.120)
Post (P)	1.527***	1.494***	1.404***	1.527***	1.437***	1.404***	1.514***	1.397***	1.430***	1.387***	1.271***	1.367***
	(0.224)	(0.227)	(0.217)	(0.224)	(0.229)	(0.217)	(0.210)	(0.227)	(0.224)	(0.225)	(0.203)	(0.225)
Interaction (CP)	0.0758	0.0570	0.0654	0.0758	0.0817	0.0779	0.0516	0.139	0.0934	0.114	0.190	0.164
	(0.159)	(0.162)	(0.159)	(0.159)	(0.166)	(0.165)	(0.156)	(0.166)	(0.159)	(0.167)	(0.158)	(0.155)
Constant	-15.61***	-17.66***	-12.95***	-15.61***	-11.99***	-14.81***	-12.04***	-14.20***	-14.02***	-12.36***	-11.22***	-12.43***
	(1.041)	(1.175)	(0.942)	(1.041)	(1.014)	(1.231)	(0.961)	(1.214)	(1.101)	(0.959)	(0.891)	(1.009)
Observations	13,983	19,366	5,055	3,287	13,077	5,705	5,171	12,028	5,693	12,125	3,173	14,508
R-squared	0.756	0.679	0.662	0.789	0.662	0.789	0.567	0.643	0.980	0.511	0.797	0.781
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Exporter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard Errors in Parenthesis are
*** p<0.01, ** p<0.05, * p<0.1

Own's elaboration of PPML gravity Model estimations based on CEPII gravity dataset 2010 & ATU database 2010

3.8 Discussion across Results and Estimation Approaches:

In turn, parallel results obtained from descriptive data and Cluster analysis, PPML and DID across all estimations indicated, as seen in the matrix of results on Table 3.15 to the significance of 6 key sectors (Industrial Chemicals, Processed Food Products, Other Chemicals, Transport Equipment Spare Parts, Machinery and Scientific Spare Parts) for which final export flows between Agadir_4 and E.U. countries have grown since the adoption of Pan-Euro diagonal RoO. One of the robustness checks used was the cluster and descriptive analysis; which both identified similar results with export flows increasing for the following three clusters of sectors: Cluster 1; classified by petrochemicals, Cluster 2 consumer non-durables and finally Cluster 3 under which falls all machinery spare parts and components. As well for greater degrees of robustness, the 3 clusters that resulted were treated by Pan-Euro diagonal RoO introduced and results maintained the same trends with: Petrochemical cluster one showing the highest level of significance and recorded an extremely elevated factor of 71 [exp(4.266)] and then followed by machinery spare parts are at factor of 1.87.

Further when Pan-Euro diagonal RoO were applied between Agadir_4 countries and the E.U. there has been an obvious increase in final exports starting by the highest chronologically: factor of 3.2 [exp (1.19)], 2.75 at [exp (1.0121)], 2.38 [exp (0.8690] and 2.92 [exp (1.073)] for Petroleum Refineries, Other chemicals, Industrial Chemicals and furniture respectively after adopting Pan-Euro diagonal RoO. As well comes in the second category for Agadir_4 to E.U. medical and transport equipment spare parts both at highly significant levels and factors of 3 at [exp (1.113)] and 2.53 at [exp (0,931] respectively, which is a result similar to and justified by the Agadir Technical unit report on automotive component parts industry between Agadir countries and the E.U. (ATU report, 2009)

Although as seen through matrix results of that intermediate export flows appeared after RoO were adopted and this was not only on the level of Agadir_4 countries with the E.U. but as well for the amplified group of 50 countries adopting Pan-Euro RoO schemes. Among the most significant sectors impacted by treatment were Industrial chemicals, other chemicals, Rubber products, petroleum refineries, equipment spare parts, textiles and leather. However, the significance for intermediate exports of treatment group II between Agadir_4 and E.U. has been at a lower scale at less sector specific intermediate export flows affected by treatment. The sectors are shown in matrix Table 3.15 to be: Furniture, leather, rubber products, and petroleum refineries.

Another fact is the evident change in the agreement's export structure and composition either for the intensity of export flows or quality since the onset of Pan-Euro Rules of origin. The introduction of Pan-Euro RoO induced the growth of regional value-added content to be more permissive and allow sourcing out of inputs at more efficient prices. This created an incentive for Pan-Euro applicants to

adopt the RoO and was itself an incentive for the emergence of new intermediate export categories between Agadir_4 countries and the E.U. such as Rubber Products (at grew at 48 times after 2006), leather and minerals

According to our best knowledge of the literature review and econometric pitfalls that could appear, there existed a thin thread between separating both effects: the onset of the Agadir agreement in 2005 and adoption diagonal RoO 2006. Although fixed effects of country of origin and destination and sector were introduced to control for any unobserved heterogeneities and a dummy for rta to capture bilateral initiatives between Agadir countries and E.U., yet it was nearly impossible to differentiate between both. In order to totally separate the impact of Agadir's agreement onset and applying Pan-Euro RoO, this requires extensive work beyond the scope of this investigation, larger time frame for both the agreement's performance and sector specific data on Pan-Euro RoO implementation and as well a detailed dialysis of the product categories and chapters, heading and sub-headings existing within each sector to reach solid results with respect to the separation between Agadir agreement for its purpose and adoption of Pan-Euro diagonal RoO.

There might be several technicalities challenging the application of RoO for final and intermediate export sectors between Agadir_4 to E.U., such as what was evident for the textile sector and food products for failure of some RoO to be adopted in some instances. As well for those sectors precisely food products, the coefficient of rta reversed to a negative sign, indicating that these technicalities might negatively impact export flows instead of employing regional trade areas to intensify trade, which runs counter-intuitive to the literature.

The applicability of diagonal RoO will give more room for manoeuvring and specialization for members to apply RoO effectively and acquire inputs from other external regions at competitive prices for their production. Furthermore, sectors of high regional value-added content between Agadir_4 and E.U, will open the door in-front of easier, unified and standardized RoO without any inefficiencies caused by their high costs and conflicting RoO. This will certainly cause a gradual shift in the export content of Agadir_4 to E.U. to be realized through intermediate flows, besides the growth of smaller feeding sectors serving for final exports.

This exercise has shown an attempt to measure the sector specific final and intermediate export flows between Agadir_4 and the E.U.; which gives more insight to some of the inter-regional initiatives between MENA countries (Agadir_4) and E.U. and to prove that one of the reasons Agadir agreement did not fail, was due to the adoption of Pan-Euro diagonal RoO; which led to raising the value-added content of Agadir's countries flow the E.U.

All the previous results do not have their implications only on intensifying trade intensity on an inter-regional level for MENA countries, however what we are really seeking out of this agreement at the bottom line is to encourage multinationals and investments to find opportunities to grow under the framework of what an agreement like Agadir offers benefits of flexible RoO and granting permissiveness for cumulating products at least costs possible , increasing the quality and value added content and manufacturing complexity of exports.

Table 3.15 Matrix of Results Across all sectors and estimations

Matrix of Results across the different models	Sector1 Beverages	Sector 2 Food Products	Sector 3 Electric Machinery	Sector 7 Furniture	Sector 9 Industrial Chemicals	Sector 11 Leather	Sector 12 Machinery S.P	Sector 14 Rubber Products	Sector 15 Other Chemicals	Sector 17 Paper	Sector 18 Petroleum Refineries	Sector 22 Scentific Equipment	Sector 23 Medical Equipment	Sector 24 Textiles	Sector 26 Transport Equipment	Cluster 1 Petro chemicals	Cluster 2 Consumer Durables	Cluster 3 Machiner S.P.
Interaction terms /significance																		
DID Treatment Group I (Export Flows)	0.952**	0.739**	-0.177	1.287**	1.022**	0.152	0.499	none	1.425**	0.377*	none	1.406**	1.055**	4.151***	0.472			
Sig.	(0.0214)	(0.024)	(0.306)	(0.0436)	(0.047)	(0.210)	(0.360)	none	(0.036)	(0.174)	none	(0.0407)	(0.0343)	(0.003)	(0.200)			
DID Treatment Group I Clusters	none	none	none	none	none	none	none	none	none	none	none	none	none	none	none	1.298***	-0.582***	0.400***
Sig.	none	none	none	none	none	none	none	none	none	none	none	none	none	none	none	(0.0975)	(0.175)	(0.0965)
DID Treatment Group I (Intermediate Flows)	0.025	0.488**	none	0.370	1.076***	1.372***	0.183	1.162***	-0.136	none	1.162***	1.110***	none	0.654**	1.402***			
Sig.	(0)	(0.023)	none	-0.311	(0.019)	(0.005)	(0.483)	(0.0127)	(0.130)	none	(0.0145)	(0.0135)	none	(0.422)	(0.0036)			
Marginal Effects Treatment Group I (Exports Flow	0.0758	0.929**	1.030**	-1.257**	1.728**	1.878**	0.226	none	-0.0164	1.007**	none	0.523*	0.963**	-0.609*	0.373*			
Sig.	(0)	(0.042)	(0)	(0.025)	(0.029)	(0.054)	(0.237)	none	(0.210)	(0)	none	-0.293	(0)	(0.244)	(0.170)			
DID Treatment Group II (Export Flows)	none	1.005**	none	1.073***	0.869*	0.705*	none	0.821*	1.012**	0.882**	1.192**	none	1.113**	0.592	0.931*			
Sig.	none	(0.034)	none	(0)	(0.024)	(0.074)	none	(0.071)	(0.026)	(0.051)	(0.028)	none	(0.043)	(0.431)	(0.053)			
DID Treatment Group II Clusters	none	none	none	none	none	none	none	none	none	none	none	none	none	none	none	4.266***	-1.174***	0.626*
Sig.	none	none	none	none	none	none	none	none	none	none	none	none	none	none	none	(0.067)	(0.034)	(0.107)
DID Treatment Group II (Intermediate Flows)	none	0.339*	none	0.267*	0.250*	1.033***	none	0.284*	0.284*	0.289*	0.307*	none	0.295*	0.259*	0.295*			
Sig.	none	(0.092)	none	(0.096)	(0.098)	(0)	none	(0.0988)	(0.0986)	(0.103)	(0.0992)	none	(0.102)	(0.0989)	(0.0994)			
Marginal Effects Treatment Group II (Export Flow	none	1.030***	none	0.647	1.033*	1.047***	none	1.296***	0.982*	1.183***	1.296***	none	1.018*	1.326**	1.035***			
Sig.	none	(0)	none	(0.564)	(0.165)	(0.059)	none	(0.029)	(0.585)	(0.015)	(0)	none	(0.595)	(0.029)	(0)			
DID Control Group I (Export Flows)	-0.103	-0.215*	-0.479*	0.238	-0.439*	-0.249	0.454*	none	0.319*	0.343**	none	-0.0341	0.778**	0.761***	0.454**			
Sig.	(0)	(0.182)	(0.149)	(0.207)	(0.247)	(0.225)	(0.039)	none	(0.071)	(0.065)	none	(0.163)	(0.032)	(0.021)	(0.196)			
DID Contorl Group II (Exports Flows)	0.00640	-0.0758	none	0.0570	0.0654	-0.0758	none	0.0934	-0.0779	0.0516	0.139	none	0.114	0.190	0.164			
Sig.	(0.162)	(0.159)	none	(0.162)	(0.159)	(0.159)	none	(0.159)	(0.165)	(0.156)	(0.166)	none	(0.167)	(0.158)	(0.155)			
PSM Treatment Group II (Export Flows) N-N	0.18	0.359	none	-0.7	0.181	0.18	none	none	0.414	0.475	-0.221	none	0.203	0.221	0.351			
Sig.	(0.241)	(0.038)	none	0.368	(0.186)	0.241	none	none	(0.034)	0.026	0.049	none	0.301	0.076	0.383			
PSM Treatment Group II (Export Flows) Kernel	0.18	0.32	none	-0.63	0.12	0.21	none	none	0.456	0.369	-0.507	none	0.54	0.358	0.599			
Sig.	(0.024)	(0.03)	none	0.309	0.145	0.051	none	none	0.205	0.151	0.302	none	0.266	0.204	0.171			

Standard Errors in Parenthesis are
*** p<0.01, ** p<0.05, * p<0.1

Own's elaboration of PPML gravity Model estimations based on CEPII gravity dataset 2010 & ATU database 2010

Table 3.16 Literature review on combining Gravity model and DID treatment approaches

Author	Publication Year	Journal	Citation
Kruegar, A.	1993	Journal of Development Economics	313
Krishna, K. & Kruegar,A.	1995	University of Michigan Press	251
Hanson G.	1996	European Economic Review	259
Falvey R. and Reed G	2000	Journal of International Economic Review	109
Brenton, P. and Manchin, M.	2002	The World Economy Wiley BlackWell	343
Cadot,O. et al.	2002	Journal of World Trade	87
Duttagupta, R. and Panagariya, A.	2003	Journal of Economics and Politics	74
Ghoneim, A	2003	Journal of World Trade	31
Estevadeordal, A. and Suominen, K.	2004	Journal of World Trade	114
Augier, P. and Gasoriek, M.	2005	Journal of International Economics	199
Cadot O. et al.	2006	World Trade Review	107
Suominen, K. Gretton P. and Gali J. 2005	2006	University of Melbourne	13
El-Megharbel, N.	2006	United Nations Economic Commission for Africa	21
Augier, P. and Gasoriek,M. and Lai Tong,C.	2007	Journal of North African Studies (FEMISE)	10
Jurše, M. Logožar, K. and Vide, R	2008	Journal of International Business Studies	13
Bombarda, P. and Gamberoni, E.	2009	International Economic Review	39
Estevadeordal, A. and Harris,J. and and Suominen,K.	2009	Inter-American Development Bank	13
Steafano.,I	2009	Cambridge University Press	3
Bensassi, S. and Márquez-Ramos,L. and Martínez-Zarzoso,I.	2010	Journal of North African Studies	33

Lee, H.	2013	The Korean Economic Review	25
Trade Gravity Models, Polic ,Impact Evaluation , and PPML Estimator			
Anderson, J. and Wincoop Van, E.	2004	Journal of Economic Literature	3,400
Silva, S. and Tenreyero, S.	2006	The Review of Economics and Statistics	2,889
H. Harou, H.	2007	Journal of Economic Integration	10
Helpman E.,and Meltiz M. and Rubinstein,Y.	2008	Quarterly Journal of Economics	2,407
Henderson, D. and Millimet, D.	2008	Journal of Applied Econometrics	119
Baier, S.and Bergstrand, J.	2009	Journal of International Economics	200
Millimet D., and Tchernis R.	2009	Journal of Business and Economic Statistics	65
Egger, P. et al.	2011	American Economic Journal	179

Source all literature review used in references and cited from academic and trade Journals

3.9 Conclusion

Around 50 countries above all the E.U and their affiliated Free Trade agreements with Mediterranean and Eastern European countries started applying PANEURO cumulation system PECS since 1997. One of significant features of PECS system is the assimilation of a RVC from outside the PTA reaching up till 40 percent; thus, introducing flexibility in sourcing inputs at more efficient costs and certainly opening new channels in front of E.U. South Mediterranean neighbors and partners to move up the global chain of value added final and intermediate exports. The focus of this chapter was about proving the effectiveness of applying Pan-Euro diagonal RoO for small association agreements affiliated to the E.U. such as the Agadir Association agreement and to assess whether diagonal RoO succeeded in changing and increasing final and intermediate export flows between Agadir 4 countries and E.U. community. Previously several sector specific studies for export flows led by Agadir Technical Unit report (ATU, 2009) could demonstrate through field survey analysis that diagonal RoO, if applied correctly, is supposed to intensify flows between Agadir_4 and E.U. As well to increase the exports of intermediates and component industries between both partners for different sectors, however, fewer evidence of empirical analysis were provided regarding Agadir Agreement and evaluating its trade intensity through adoption of Pan-Euro RoO

In order to proceed with a precise estimation of adopting diagonal RoO and how it would boost export flows for Agadir agreement countries, it was necessary to lay down the foundation to be supported by descriptive analysis and Cluster Analysis. The cluster results led to the emergence of three key categories of sectors upon which nearly 90 percent of Agadir_4 to E.U exports flows revolved and they were as follows: Cluster 1 Petrochemicals cluster with Industrial Chemicals and all other related Chemicals. Cluster 2, non- durable consumer goods cluster which encompassed Food Products, Beverages and Textiles. Cluster 3, Heavy Duty and Machinery Spare Parts and components cluster comprised of Transport Equipment, Scientific Equipment, Medical Equipment and Furniture. After the identification of key categories of sector from the cluster analysis, their sector specific export flows were introduced into an augmented gravity model; those final and intermediate export flows were subject to treatment with Pan-Euro Diagonal RoO through impact evaluation approach of DID and for robustness checks, the Cluster Analysis was also employed.

Treatment was decomposed into treatment groups I of 50 member applicants of Pan-Euro RoO versus treatment II of Agadir_4 countries and 26 E.U. members. Counterfactual both Control I and II groups similar in all the characteristics of treatment groups I and II except for treatment. Most significant results after Pan-Euro RoO treatment indicated that the coefficients of gravity variables for several sectors remarkably impacted final and intermediate export flows between Agadir 4 to E.U. at highly significant coefficients of 11 and 6 out of the 12 sectors, through the interaction variable estimating the crossed effect between treatment and time known as $(\beta_{10}^{k} DP_{ij})$ term. The most significant results with high coefficient emerged for final exports of treatment group II. Furthermore, this result strongly suggested that the treatment premium is almost 2.5 times higher between the treatment and control groups with the partial significance of their sector's coefficients weighting at much higher factors for treatment with diagonal RoO for both clusters petrochemicals and machinery spare-parts.

Besides the fact that treatment with diagonal RoO contributed to the emergence of a different structure and composition for final and intermediate export flows between Agadir_4 and the E.U._26 countries. Finally results across all approaches suggested the significance of 6 key sectors (, industrial chemicals, other chemicals, transport equipment spare parts, food products, machinery and medical spare parts) for which final export flows has grown since the adoption diagonal RoO between Agadir 4 countries and E.U.

On the promising side, the emergence of intermediate trade flows between Pan-Euro Diagonal RoO applicants and at a smaller scale for Agadir 4 to the EU and existence of new feeding sectors such as rubber products, leathers, petroleum refineries, and paper to pour into the manufactures of the three main clusters signals to the gradual shift in the export content of Agadir_4 to E.U from basic semi manufactures and unprocessed materials to another level of sophisticated manufactures with higher value added content.

There is no doubt as well that flexing threshold of regional value content for final and intermediates flows, allows permissiveness of higher foreign content to be out sourced efficiently and at same time increasing competitiveness and facilitating more specialization and development of 'smaller feeding industries'.

As per se more investigation should be dedicated to the resolution of technical barriers facing the implementation of diagonal RoO in sectors like textiles and processed food products. Furthermore, there should be a well-studied strategy for linking between exports of manufactures and their intermediates in specific sectors between Agadir 4 and E.U. at one hand and the promotion for those sectors as the targeted and ones with incentives to attract multinationals and small and medium investments. Accordingly, chapter 4 of this work will be devoted to the analysis of FDI growth in key sectors motivated by the Agadir 4 export flows and European and other foreign investors. It is expected to employ another alternative research methodology which is the qualitative research by introducing, designing and analysing empirically a questionnaire directed to FDIs' in Egypt as a study case; to reflect upon the situation of investments in Arab countries in light of the latest political, economic and institutional instabilities and wave of upheavals which started during 2011.

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Chapter 4: Will the Quality of Institutions Determine Egypt's Investment Climate?

Will the Quality of Institutions Determine Egypt's Investment Climate?

A Qualitative Questionnaire and In-depth Interviews on the case of Foreign Direct Investment (FDI) in Egypt

4.1 Introduction:

Many countries have witnessed turning points in their political and economic systems[xiii] during the last 40 years, which led them to pass through the 4 stages of transition known by the '**Transition Paradigm**'. These stages chronologically start with the '**Opening Stage**[135]' then the '**Breakthrough Stage**[136]' followed by the **'Transitional Stage**[137]**'** finally the '**Consolidation Stage** [138] ' (Carothers, 2000; Linz and Stepan, 2009). The transitional stage based on the experiences of many regions is when countries re-build their institutions and economies, in attempts to retrieve investors' confidence and encourage FDI to return or open the door wide to new investment opportunities (Carothers, 2000). It is true that investors give priority to the quality of institutions when they evaluate transition economies, however they use well-grounded theoretical models such as the '**Dunning' Eclectic Paradigm'**[xiv] **(1997)'** of '**OLI model**' to rationalize their decision to invest in a specific destination. (Dunning, 2001; Dunning and Lundan, 2008; Caleiro and Caetano, 2009). The three triangular advantages of OLI model stand for "O" for **'Ownership Advantage'**[139], "I" known as the '**Internationalization Advantage**[140]' and "L" denotes '**Location Advantage**[141]' and they act as a checklist for investors to formulate their investment decisions. Apart from this checklist, relationship between quality of institutions and its impact on FDI climate has been under scrutiny by many authors; especially for economies in transition. (Alesina et al., 1996; Onyeiwu, 2000; Todaro, 2002; Jensen, 2003; Asiedu, 2005;

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[135] Opening Stage: when cracks appear in governing regime of a country

[136] Breakthrough Stage: which signals to the collapse of the regime and emergence of other more democratic alternatives.

[137] Transitional Stage: which is re-adaptation of the country's institutions to conform to the new regime's changes

[138] Consolidation Stage: which works on reinforcing those institutional changes

[139] Ownership Advantage: which reflects on the know-how, market niche and transferred technology

[140] Internationalization Advantage: which signals to the competitive ownership of know-how and its exclusivity

[141] Location Advantage: which grant firms' investment incentives in certain markets, activities or regions

Caleriro and Caetano, 2009; Aisen and Veiga, 2010; Caetano and Galego, 2009; Barhim and Rachdi, 2014).

The Middle East and North African region had its share of exposure to the waves of transition since the 1990's and some of its countries are still going through those transitions until now. Most of the mainstream literature reviewing this topic pointed to the fragility of political and economic institutions in MENA to be the main cause behind discrepancies in their performance and to negatively impact the region's FDI flows (Onyeiwu, 2003; Méon and Sekkat, 2004; Chan and Gemayel; 2004; Kamaly ,2007; Caetano and Galego, 2009). More recently after the 2011 Arab turmoil pro-claimed as '**Arab Spring**', the situation for attracting FDIs' in their countries has become worse and many regional analysts suggest that those countries should go through rigorous reforms to avoid the precipitated loss of investors 'confidence in their region (Ishay, 2013; Khandelwal and Rotiman, 2013). Accordingly, this chapter refers to the case of FDI in Egypt; as one of the typical Arab countries going through the same transition the Arab countries suffered; given Egypt represents 25 percent of MENA region's market capacity. Besides it recovered up to 61 percent of its FDI flows 4 years after the revolts and its involvement in a considerable number of regional investment agreements with many partners, should leave it at an advantageous position to be a recipient of higher FDI flows (UNDP, 2014; GAFI, 2015; IMF Survey 2015).

The study focuses on the quality of institutions in Egypt during the transition and its impact on FDI climate. Its originality lies in the fact that we have designed a comprehensive questionnaire gathering a novel dataset on FDIs in Egypt after 2011 turmoil. Moreover, the chapter includes 12 in-depth interviews on specific sectors. It is true that the qualitative research data methodology assessing FDI climate is still in its nascent stages, yet recently there has been a boom of studies in this framework supported by qualitative research (i.e. targeted questionnaires, elite interviews, case studies and focus groups) to compensate for the lack of quantitative data in cases of transition economies. (Ziacik, 2000; Bastos and Nasir, 2004; Tridico, 2006; Klaus and Saul and Kumar and Mike, 2009; Hotho and Pederson,2012; Garridoet al., 2013; Hanafy, 2015).

The qualitative questionnaire on FDI's in Egypt in this context covered a sample of 92 Small and Medium Investors (SMI) and we designed it to include three parts. The first part incorporated data demographics about FDIs, meanwhile, through the second and third parts, we introduced questions to assess the quality of institutions and how they determined FDI climate. The questionnaire's main objective is to distinguish between the behaviour of foreign and Egyptian FDI's during the time of transition. How did foreign investors react after the turmoil? Did they prefer to hold their investments or just left after the turbulences started?

After the gathering, coding and preparing the 92 questionnaires data, a Principal Component Analysis was conducted to reduce the dimension of variables used in the Logistic regression with

categorical and ordinal variables. The regression results confirmed that a one standard deviation increase in the categories of the following variables: protection of investors' rights, doing business enablers and quality of macroeconomic institutions; led to 70 percent increase in Egypt's investment climate at high degrees of significance. In parallel, the 12 in-depth interviews on sector specific results of FDIs in Egypt had shown great consistency with the results driven from the econometric analysis. The results had shown that 60 percent of top ranked foreign managers of the interviewed FDIs commented that they prefer to "Wait and Hold" their investments in Egypt and do not take the initiative to undertake further expansions during the transition. Interviewees as well were concerned about protection of their property rights, giving them more privileges and securing a stable macroeconomic climate for investors to continue in a productive investment climate. The chapter is structured in the following manner: Section 1 introduces the relation between FDI climate and institutions and the motivation behind the topic. Section 2 is dedicated to the theoretical and empirical literature exploring the relationship between quality of institutions and FDI climate. Section 3 Analysis of the questionnaire and in-depth interviews demographics and descriptive data. Section 4 focuses on the econometric methodology. Section 5. Presents the annex of results for questionnaires and interviews. Section 6. Contrasts the communalities between the questionnaires and in-depth interviews, and interviewees' quotes. Then section 7 presents policy implications and conclusion.

4. 2 Theoretical and Empirical Literature Review linking between quality of Institutions and FDI climate

4.2.1 Types of Institutions and their relation to FDI Climate

The main stream literature relating the quality of institutions to FDI outcomes advocated that political factors were foremost to determining FDI. Stable Political institutions based on conserving investors property rights and regulating policies and legislations to incentivize investors are indispensable to healthy FDI climate. The literature review also reflected on incidences of violence and political turbulence that resulted in expropriation and nationalization in some Eastern European economies; as a means of capital control and which led to higher risks endured by investors. (Alesina et al, 1992; Barro, 1991; Alesina and Perotti, 199;) Wei, 2000; Jensen, 2003; Bevan, Estrin and Meyer, 2004; Prüfer and Tondle, 2009). In complementarity to the quality of political institutions, many authors assumed that several economic factors are not of less importance to further illustrate the relationship between economic institutions and FDI climate. In a nutshell, the most significant ones are trade freedom, business freedom, investment freedom, infrastructure connectedness, market size, foreign and domestic capital mobilization, inflation, foreign exchange fluctuations, taxations systems, all together according to evidence from literature are factors contributing to a consolidated investment climate (Gastanaga et al,

1998; Collier and Gunning, 1999; Onyeiwu, 2000; Asiedu, 2005; Caetano and Galego, 2009; Barhim and Rachdi, 2014). More recently innovative approaches developed by Caetano and Calero (2009) have been employed to prove the existence of a stronger correlation between economic freedom and inwards FDI performance through employing the '**Fuzzy Cluster Logic Approach**'[142]

In fact, the impact of both economic and political institutions are inseparable in determining investment climate and they both overlap with each other on certain criteria. This notion was conveyed by Wheeler and Moody (1992) and Singh and Jun (1995) and Porter et al. (1999), when they combined all determinants of the desirable investment climate characterized by business-friendly regulations, lower bureaucracy, less red tape, protection of property rights, reduced corruption and consolidated quality of legal systems (North and Weingast,1989; Olsen, 1991; Stein, 2001). Empirical studies using gravity models had their share of supporting how the quality of institutions, when captured through the relevant variables (institutional, legal and political factors)[143] would lead to significant impact on FDI climate in MENA countries (Kamaly, 2002; Estrin and Bevan, 2004.Quéré et al., 2005; Gammoudi,2007; Onyeiwu,2008).

In a closer perspective on the literature regarding investment in Egypt, Khalil (2015) identified the variables influencing investment climate in Egypt through the co-integration equation to be GDP, household expenditure, in addition to trade and exchange rate policies. In parallel, the use of indices in accounting for the quality of institutions and how they can adjust for FDI climate has been extensively used in the literature. Three of the most prominent indices commonly used as indicators were: 'The worldwide Governance Indicators' developed by the World Bank. 'Ease of Doing Business Index' originally created by IFC and finally the 'Index of Economic Freedom' motivated by Heritage Foundation. (Kuafman et al, 2010; Gwartney et al., 2015; The World Bank Doing Business Report, 2016).

More recently one of the most novel methodological approaches to modelling relationship between institutions and FDI, has been the qualitative and mixed economic methodologies. Those approaches mainly relied on surveys and questionnaires to be conducted in all cases and precisely

[142] Fuzzy Cluster Logic Approach: It uses a kind of fuzzy logic to construct clusters in space; where a country's position in space will be determined by index of economic freedom on one vertex and FDI index on the other and the logic of crisp sets is the degree to which a country belongs to is 1 and if it does not belong to the set is zero. The identification of the fuzzy set is defined by the group of countries belonging together in compact spacing. For example, a country with economic freedom index of 5 can be considered high, normal or depending on the degree of membership function of the fuzzy set (Caetano and Calero 2009).

[143] Institutional Freedom variables: Institutional freedom variables in our context is inclusive of both types of political and economic institutional freedom indicators

in transition economies (Ziacik,2000; Batra et al. ,2003). Moreover, the new scope of qualitative literature has been more advanced to focus on detailed sub-factors within indices and how they can be extracted from surveys and questionnaires. This is evident in the case of Troilo (2015), when he collected specific sub-components and indicators from Multinational companies' surveys to assess how they influenced FDI climate. As an example, he used the speed and enforcement of verdicts taken by courts to measure the impact of dispute settlement on FDI climate, instead of just relying on the qualitative scale and preference categories of the survey.

4.2.2 Quality of Institutions and their Impact on FDI Climate in Arab Countries in Transition (ACTs)

Long before the recent upheavals in MENA countries, the literature detected the fine thread between political and economic institutions and precisely the adverse effects of political instability on economic indicators such as high inflation rate and currency devaluation in developing countries. (Alesina et al', 1996; Alesina and Perott, 1996; Barro and Azam et al., 1996; Aisen and Veiga, 2006; Jong-a-Pin, 2009; Aisen and Veiga,2011). When the series of political turmoil and incidences first struck the region like a **'Domino Effect Theory'**[144] ; the resultant was that governments were overthrown in Egypt, Tunisia, Libya and the Republic of Yemen. Civil wars broke out in Libya and Syria and major turbulences extended to Bahrain, Turkey and Lebanon (Ferragina 2014). Thought leaders and even international organizations and policy think tanks (the European Institutions, IMF, World Bank) identified the region's wave of turmoil to be originally provoked by the absence of healthy, democratic and independent political institutions[145] based on the rule of law (Behr and Sasnal, 2012; Kausch, 2013; Khader, 2013).

4.2.3 Egypt's Institutions and FDI Climate after the 2011 incidents:

Egypt as one of the region's countries hardly hit by those waves of upheavals, lost the biggest portion of its foreign investments at nearly 80 percent during 2010 based on Egyptian Central Bank Statistics (2016). As shown in Figure 4.1, Egypt reached a trough and reversal point of de-

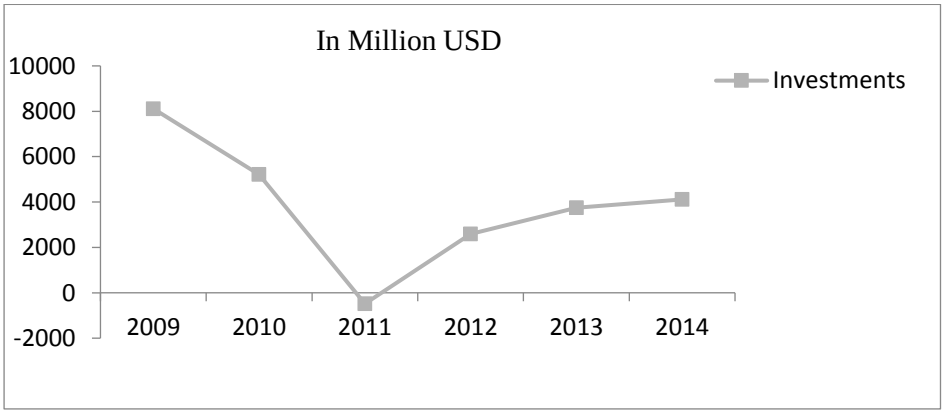
[144] Domino Effect Revolts: it signifies that revolts in Arab countries affected one country and its contagion spread to the rest and that the spill-over effects of hardly hit countries spread to their neighbor and caused disturbances and lack of security in their production, economic activities and above all tourism industry, trade and foreign investments.

[145] Problems of Political institutions in MENA region are the following: In some of the MENA countries state officials, government and their one party dominated parliaments are in control of the three branches of the country's political powers: executive, legislative and judiciary power. In reality, each power should be handled independently from different officials. Judges and supreme courts should be fully responsible for the state's judiciary power, without any intervention from the parliament's legislative board or the government's executive power (Frontini & Janning 2012).

investments during 2011 with the onset of the political upheavals and revolts. The Multilateral Investment Guarantee Agency MIGA report (2014) anticipated that Arab Spring countries to include Egypt will be placed on the warrant status and will receive '**Wait and Watch**' evaluation by FDIs. On a brighter scenario, the level of FDIs in Egypt during 2014 returned to half its original FDI inflows before the revolts to increase by 61 percent. Since then talks were initiated regarding serious reforms in the investment law during 2014 and effectively by end of February 2015, new amendments to the investment law responding to investor's demands were approved only by the '**General Authority for Investment' (GAFI).**

The amendments of Egypt's investment law 17 of 2015[146]targeted many aspects of institutional reforms to enhance the country's investment climate: namely through Companies law, taxation laws, disputes settlement and arbitration, ownership rights, investment regulatory, legislative framework and income taxes. In addition, guarantees and incentives were all altered to create the suitable climate to enable doing business in Egypt. One of the amendments results that came along before the law was finally ratified by the parliament and came to light on May 2017, were reductions in the corporate tax rates to reach a maximum of 22.5 percent being much lower than world average tax rate. (UNDP, 2014; GAFI, 2015; IMF Survey 2015).

Figure 4.1: Egypt's FDI in Millions of Dollars



Source: Central Bank of Egypt Report 2015

4.3 Descriptive Data of the Qualitative Questionnaire and 12 in-depth interviews

Our qualitative questionnaire sought to gather data on factors affecting FDI climate in Egypt from investors perspective. It was a much reliable methodology used from a practical point of view, as

[146] Amendments Investment Law number law 17 for 2015 generally aimed at enhancing the investment climate in Egypt, which has been hit hard by political and economic instability during the last 4 years

it presented one guaranteed approach to interpret investors needs into statistical data and at the same time to resolve the challenging task of finding data on the region under the severe limitations it is passing through. The questionnaire was split into three parts: to start by first part giving some descriptive data on the questionnaire demographics, and sample selection criteria. Both parts II and III of the questionnaire were designed to include all the institutional factors that we believed to have an impact FDI climate in Egypt. It also reflected on the difference between top management of Egyptian and foreign FDIs and how they reacted to 2011 incidents. Above all the questionnaire variables were designed in line with factors reflecting upon Ease of doing business criteria, economic freedom factors and worldwide governance indicators .

4.3.1 Sample Selection Criteria and Design of Egypt's FDI Questionnaire

Based on Mahdy and Louis (2003), it is possible to select a representative sample of respondents for the questionnaire on FDIs through a multifaceted sampling technique. This was the case of FDI data gathered for Egypt; as it was comprised of 50 face-to face questionnaires given to 54 percent of the FDI respondents of small and medium multinationals. In addition to 42 other questionnaires sent online or left for respondents to be filled, in consistency with the approved qualitative research methodologies (Caserta et al, 1985). The latest UNCTAD report on Egypt (2015), indicated that 200 FDIs were registered at an ownership of less than 10 percent of their investments and abdicated under the investment law no. 8/1997 recently amended by Presidential decree 17/2015. Our team of researchers could reach up to 120 [147]active FDIs in Egypt, which was in consistency with statistics given by UCTAD FDI database on Egypt (2013). Therefore, finally total sample encompassed 92 active multinational foreign investors after discounting (FDIs that did not respond, or imaginary FDIs found only on the records and registries). Out of a population of 120 existing FDIs, our sample encompassed 77 percent of the FDI population of this category in Egypt.

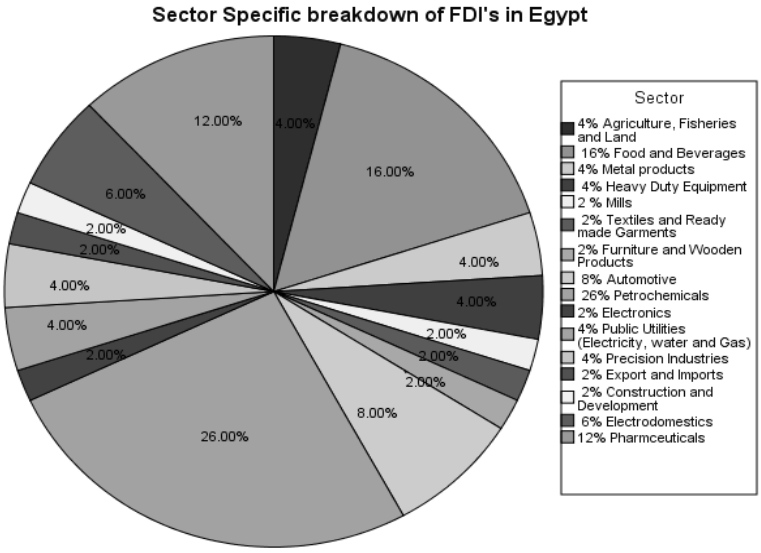
The definition used for FDIs in this context; was strictly derived from **'Central Agency for Public mobilization and Statistics' (CAPMAS)** and it referred to the possession of a foreign investor for assets or a production line in a firm affiliated to a country other than home country. Based on the definition, FDI should meet the following criteria: i) Foreign ownership of FDI could exceed 50 percent ii) The investment law under which the FDI was established and legal entity should be defined iii) Number of employees in the range of [100 – 250] employees. IV) revenues less than

[147] The real Population 120 FDI's found in Egypt: 50 of them were given the questionnaire and 42 the questionnaire was emailed to them, meanwhile , the rest 28 FDIs': 10 FDIs left the country and 18 others we tried to contact them 7 did not answer and could not be reached and 11 refused to collaborate.

USD 10 million. V) the presence of limited liability or partnership between both Foreign versus Egyptian investors to be specified. The style of questions on the first part of the questionnaire were based on a close– ended technique and they gathered descriptive data on FDIs' sectors, ownership, location, number of employees and revenues.

Almost 82 percent of interviewed small and medium foreign investors in Egypt were concentrated in the manufacturing sector. As much as possible targeted FDIs were chosen with an ownership exceeding 50 percent to guarantee their autonomous decision making and behavior independent of any vested interests. Based on CAPMAS Small investors were bound to revenue bracket which does not exceed EGP 50 million and medium investors were categorized in the revenue range exceeding 50 million Egyptian pounds but less than 250 million Egyptian Pounds. The targeted segment of FDI's were the ones identified to have at least a minimum of 100 employees for small FDIs and between 100 –500 for medium ones (Kushir,2007).

Figure 4.2: Sector Specific Breakdown of FDI's in Egypt



Own's elaboration based Descriptive Data Derived from FDI Questionnaire on Egypt

As seen in Figure 4.2 the largest portion of FDIs in Egypt were dominated by the petrochemical sector and other oil and gas related services at 28 multinationals from which 31 percent of FDIs specialized in the oil and gas sector[148]. As for agribusiness FDIs they amounted to 20 FDIs and a

[148] In Egypt most FDI's are concentrated in the petrochemical sector precisely oil and gas, with 50 international petroleum companies during 2012 were operating in Egypt for exploration, digging and oil extraction

lower number of 15 FDIs in pharmaceuticals. Both together electronics and electro domestics added to 12 FDIs and equally true for automotive component parts, and finally 8 textiles.

Table 4.1: Topology of Respondents Demographic FDI Questionnaire data in Egypt

Nationality	**# Frequency**	**% Percent**
American	39	42.4
European	32	34.8
Multinational	16	17.4
Asian	3	3.3
Gulf Region	2	2.2
Enterprise Structure	**#Frequency**	**% Percent**
Partnership	1	1.1
Limited Partnership	9	9.8
Corporation	67	72.8
Limited liability	10	10.9
Subsidiary of Foreign Company	4	4.3
Public Sector	1	1.1
Location	**# Frequency**	**% Percent**
6th of October	11	12.0
10th of Ramadan	5	5.4
Cairo	56	60.9
New Cairo	10	10.9
Al Obour	1	1.1
Giza	6	6.5
Alexandria	2	2.2
Upper Egypt	1	1.1
Ownership	**# Frequency**	**% Percent**
More than 50%	36	38.0
Less than 50%	56	60.9
Legal Entity	**# Frequency**	**% Percent**
Urban Development Institution Law	2	2.2
Law 159 for 1981	36	39.1
Law 203 for 1989	17	18.5
Law 95 for 1992	18	19.6
Law 8 for 1997	6	6.5
Law 83 for 2002	7	7.6
Others	6	6.5

Employees	**# Frequency**	**% Percent**
Less than 100 employees	23	25
from (100-250) employees	41	44.6
More than 250 employees	16	17.4
More than 1000 employees	12	13.0
Other Establishments	**# Frequency**	**% Percent**
West Europe	29	31.5
North America	10	10.9
East Europe	7	7.6
Asia	10	10.9
Middle East and North of Africa	30	32.6
Central and South Africa	6	6.5
Sector	**# Frequency**	**% Percent**
Agriculture, Fisheries and L	4	4.3
Food and Beverages	16	17.4
Metal products	2	2.2
Electro domestics	4	4.3
Textiles	2	2.2
Furniture	2	2.2
Automotive	8	8.7
Petrochemicals	23	25
Electronics	3	3.3
Public Utilities	2	2.2
Precision Industries	5	5.4
Construction and Development	1	1
Other Services	5	5.4
Pharmaceuticals	15	16.3

Source: Own's elaboration based on primary raw data from Egypt's FDI Qualitative Question

4.3.2 Phase Two: Exploration and Mining of FDI Questionnaire Data and its structure

On this phase of data exploration and inferential statistics[149], we rely on estimating the interaction between variables tested by using **'Pearson correlations II'.** This correlation associates between two or more variables through both **'Phi Coefficient'[150]** and 'Spearman's rho' [151]

A) Part I of the Questionnaire: Investors FDIs Topology and Demographic Data

This part of the questionnaire consists of 11 '**Close-Ended Questions'**[152]; already shown on Table 4.1. These questions provide a detailed overview of the investors' profiles, registry form, legal entity in Egypt, foreign versus local ownership percentages, sector classification, headquarters and horizontal expansion in other parts of the MENA region. Demographically and with more relevance to regional investment agreements, American and European FDIs grabbed the lion's share of 30 and 25 respectively out of the 92 FDI. In third place came equally Egyptian and Asian multinationals at 14 investors and finally a lower number of Gulf and Arab investors of 8 FDIs in the sample. Almost 37 FDI's in the corresponding sample are enlisted under the framework of '**Urban Development Law No. 159 of 1981'**[153], which allowed foreign investors to have an ownership that exceeded 50 percent. On the other hand, the rest of FDIs at around 45 are abdicated under '**Law No. 8 for 1997'**[154]with the latter law granting more financial and fiscal incentives to investors.

We detected through Table 4.2, that 24 out of the 43 FDIs at an ownership category exceeding 50 percent, have a higher number of employees exceeding 250. Contrary to the intuition behind the new amended laws; giving incentives to investors in Upper Egypt, 76 FDI's were located around Cairo

[149] Inferential Statistics: They are used to draw inferences about the conditions that exist in a population from studying the sample drawn from the population.

[150] Phi Coefficient: involves a correlation between two qualitative and dichotomous variables such as sectors classification and ownership.

[151] Spearman's rho: when correlation is measured for two variables that are in ranks

[152] Close ended questions: are questions that limit the answers of a respondent to a set of choices he can select from , these type of questions are time-efficient and easier for coding and interpretations and their examples are dichotomous or two type questions, multiple choice and scaled questions.

[153] Law No. 159 of 1981: This law permitted automatic company registration upon presentation of an application to GAFI, besides it additional advantages for the removal of the restriction that 49% of shareholders should be Egyptians.

[154] Law No. 8 for 1997: It is the law unifying one authority GAFI to be responsible for investor's incentives and guarantees and the grouping of 20 exemptions and incentives under one law. It also allowed 100% foreign ownership of ventures and guarantees the right to remit income earned in Egypt and to repatriate capital.

and Giza, Alexandria and the outskirts of upper Cairo and Giza. There were agglomerations of FDIs in industrial zones found in new Cairo and 6th of October than other regions due to the existence of tighter security measures, infrastructure and services around those areas.

Table 4.2: Cross Tabulation between Numbers of Employees versus % of Foreign Ownership

	Employees					Total
	Less than 100 employees	From (100-250) Employees	from (250-250) employees	More than 250 employees	More than 1000 employees	
Did not want to emphasize	0	7	12	0	4	23
Ownership Less than 50% Foreigners	2	3	5	8	8	26
More than 50% Foreigners	0	11	24	8	0	43
Tota l	2	21	41	16	12	92

Source: Own's elaboration based on primary raw data from Egypt's FDI Qualitative Questionnaire Output 2015

Table 4.3 has shown that over 72 percent of management positions of the 92 FDI's questionnaires had foreign management versus 21percent managed by Egyptian. The cross tabulation conducted between the percentage of foreign management and their decision to expand or downsize their investments in Egypt had shown that 10 percent of foreign managers announced the expansion of their next investment phase versus 84 percent refusing to proceed with any expansions during the transition.

Table 4.3: Cross Tabulation between Management and Expanding Investments in Egypt

Management * Expand Investment in Egypt Crosstabulation

		Expand Investments [155]				Total
		Yes	No	Under Investigation	Not aware of	
Management	Foreign Management	7	56	2	2	67
	Egyptian Management	0	20	0	0	20
	Joint Management	1	4	0	0	5
Total		8	80	2	2	92

[155] **Source: Own's elaboration based on primary raw data from Egypt's FDI Qualitative Questionnaire Output**

B) Part II of the Questionnaire: Doing Business Enablers

Moving onto section 2 of this questionnaire composed of 4 close-ended questions and 1 '**Open-Ended**'[156] **'Likert Scale**'[157]Matrix applied to identify the relationship between doing business and their impact on FDI climate in Egypt. Likert scale respondents were asked to rank a series of factors in each category on a scale of one to five. It was detected in chronological order of importance through the cross variable references in Table 4.4: first that 67 percent of investors agreed that they suffered from the presence of high tariff and duties; especially for pharmaceuticals and petrochemicals importing a considerable portion of their inputs and intermediates.

Second, 54 percent of respondents favored the provision of suitable funding facilities from banks i.e., letters of credit or guarantees, as an incentive for investment and they asked for fair and quicker Conflict resolution and dispute settlement procedures. Already the numbers of cases filed against Egypt before the '**International Centre for Settlement of Investment Disputes' (ICSID)** reached 14 since 2011. As well facilitating paper-work for FDIs of labor intensive sectors, infrastructure, establishment licenses and concession rights (in case of petrochemicals and automotive) was a top priority to 42 investors. Finally, around 29 investors across those sectors: processed food, beverages, pharmaceuticals and automotive sectors agreed that they suffered from illegal competition faced by bigger private and public monopolies. The questionnaire inferences in this part came in consistency with Salah and Dermarker (2015) qualitative results.

Table 4.4: Cross Tabulation between Sectors and Business Enabling Factors

	Food & Beverages	Metal products	Heavy Duty Equipment	Mills	Textiles and Ready made Garments	Furniture and Wooden Products	Automotive	Petrochemicals	Electronics	Public Utilities	Precision Industries	Export & Imports	Construction	Other Services	Other Sectors
Gurantees and Funding	16	3	4	2	2	0	8	25	2	4	4	2	6	5	9
Illegal Competition	29	0	3	2	2	2	12	25	0	0	4	2	2	4	5
Contracts & dispute Settlement	22	3	4	2	4	0	2	31	2	0	8	2	2	1	9
Land Accessibility & Pricing	20	3	4	2	2	2	4	41	2	4	4	0	0	2	2

Source: Own's elaboration based on primary raw data from Egypt's FDI Qualitative Questionnaire Output 2015

[156] Open- ended questions: Some of the categories of the open - ended questions include questions with no predefined options; where the respondent can devise their own answers and it guarantees accurate responses to some specific problems and true reflection about the subject, however, it is time consuming and involves difficulty in coding. (statistical Service Centre, 2001)

[157] Likert Scale: open ended question in which respondents are presented with one or more attitudinal statements and asked to score each statement on a multi-point scale. (Mathers and Fox and Hunn 2009)

C) Part III of the Questionnaire: Quality of Political and Economic Institutions

The last part covered 5 close-ended multiple choice and 3 open-ended Likert matrix questions and they all included variables determining the quality of Egypt's political and economic institutions. Around 96 percent of respondents perceived restrictions placed on Foreign exchange conversions, inflation, volatility in foreign exchange fluctuations and how fiscal policy works, as the main macroeconomic determinants affecting their enterprises in Egypt

Second Macroeconomic factors were given a substantial dimension by investors, as 62 percent of investors gave taxation system a high tanking. This came supported by the precise open-ended commentaries of 10 FDI's, lobbying for the regulation of corporate taxes to be subject to '**Anti- Double Taxation Treaties**'[158], as an incentive to accelerate tax refunds and rebates to encourage investors.

As demonstrated from Table 4.5, 80 percent of respondents at higher revenue brackets above 50 million Egyptian Pounds per annum pointed to demonstrations, terrorist acts, violence and loss of government credibility to be the crucial political factors determining the investment climate and their continuity in Egypt

Table 4.5: Cross Tabulation for FDIs Revenue Streams against Demonstrations and Instability in Egypt

		Demonstration & Instability		Total
		.0	1.0	
Revenues	less than 50 million LE per annum	6	22	28
	More than 50 million LE per annum	25	39	64
Total		31	61	92

Source: Based on primary raw data from Egypt's FDI Qualitative Questionnaire Output 2015

More importantly in Table 4.6, shows that over 77 percent of FDIs had set trade openness as a priority to them; given that they had already established bilateral and regional trade and investment agreements between Egypt and their countries. The trade openness came to show significance for sectors such as: petrochemicals, pharmaceuticals, vehicle spare parts and automotive, textiles and processed food having the largest share of trade and investments with European Community, United States under the framework of QIZ agreement and finally Agadir Agreement countries.

[158] Anti-double Taxation treaties: an instrument of fiscal policy exposing corporate businesses and FDI's; especially international investments to a double tax on the income generated by this company in its operational site and as well from where it's capital and investments originate.

Table 4.6: Cross-Tabulation between Trade Openness an important Element of Investment Climate

Investment Climate	Trade Openness					Total
	Super Important	Very Important	Important	Less Important	Unimportant	
Super Important	26	4	10	9	1	50
Very Important	2	10	13	0	4	29
Important	2	2	2	4	3	13
Total	30	16	25	11	8	92

Source: Based on primary raw data from Egypt's FDI Qualitative Questionnaire Output 2015

4.3.3 In-depth interviews conducted with 12 Targeted FDI Respondents

A) Methodology of Twelve In-depth Interviews Conducted:

An in-depth interview is an open-ended qualitative research approach focused on conducting individual interactive interviews with a small number of respondents. It depends on open ended and less structural protocols that gives more flexibility to respondents. Moreover, in-depth interviews provide detailed and quality information that can't be gathered through other qualitative research methods, versus, its drawbacks of being a time consuming analysis and how it is based on a smaller sample (Kaar, 2007; Bleich and Pekkanen, 2013). This type of interview explores and narrows down the focus on a specific research topic to capture rich, descriptive and analytical data about a certain research topic. The process started by conducting the in-depth interviews on an individual basis.

The types of questions asked during in-depth interviews were proactive, ideal, interpretative and leading[159].Then after the questioning phase, we performed the data transcription manually or by software (Atlas.ti), reviewing data provided by interviewees and giving codes to data strings. The transcription was introduced to the Atlas.ti software to further assign numerical codes to important information and quotations. The Atlas.ti software gave the 'Codes Report Output' to verify results and determine common code categories or patterns between all Interviewees. Graphical networks and a summary table derived from interviews results were a necessity to disseminate and support findings of the questionnaire (Nigatu, 2009). According to Boyee and Neale (2006), the selected sample of in-depth interviewees do

[159] Types of Questions used for In-depth interviews: Provocative probing the interviewee to spill out information, he isn't aware of. Interpretative: what do you mean you have port congestion problems? Giving more specific details, examples and incidents and finally (Nigatu ,2009)

not necessarily have to be composed of CEO's, but respondents are preferred to be at one of the highest managerial positions in the enterprise.

The topology of the in-depth interviews on Table 4.7, has shown that the majority of in-depth interviews with FDI are bound under law 159 for 1989 with more flexibility granted to all types of investments classified under partnerships shareholders, limited liability and representative offices. The percentage of foreign managers and CEOs reached a breakdown of 58 percent foreigners versus 42 percent Egyptian managers and only 4 out of 12 interviewees did not have other investments in ACT countries except for Egypt and if available in other ACTs; they are mainly located in U.A.E., Saudi Arabia, Tunisia and Morocco. Around 7 out of the 12 interviewees had intentions to upgrade their production capacities in Egypt, however, they don't confirm their intentions of building new facilities and this was evident for the cases of petrochemicals, and energy sector, which necessitate large investments

The main results and data of the in-depth interviews will be discussed on the next page

Table 4.7: Topology of Descriptive demographics of 12 in-depth Interviews

Respondents	Sector	Location	Branches	Activities	Employees	Revenues	Ownership &Legal	Invest. ACT´s
Respondent 1	Agri. business	Alexandria	2 facilities	Grains Processing	75	More than 50 million LE per annum	- Law 159 for 1981 -Local investor	Morocco
Respondent 2	Automotive	Cairo	4 branches	Car Production Assembly	1200	More than 50 million LE per annum	-Law 159 for 1981 -domestic - government	U.A.E Saudi Arabia
Respondent 3	Petro. Chemicals	New Cairo	1 branch	Natural gas	300	More than 50 million LE per annum	- Law 159 for 1981 -private -government	None
Respondent 4	Heavy Machinery	Alexandria	11 centers	Importation & assembly machinery	250	More than 50 million LE per annum	- Law 159 for 1981 -Private -Domestic	- U.A.E. -Tunisia - Lebanon
Respondent 5	Pharma.	Cairo	More than 30 sales points	Production of pharma.	885	Less than 50 million LE per annum	- Law 159 for 1981 -government -domestic	- U.A.E - Saudi Arabia
Respondent 6	Pharma.	Cairo & other governorates	17 sales outlets	Production of pharma.	1500	Less than 50 million LE per annum	- Law 159 for 1981 - Foreigner -Domestic	None
Respondent 7	Chemicals	6th of October	24 centers	Chemical industries	350	More than 50 million per annum	-Law 8 for 1997 -Private -domestic	None
Respondent 8	Automotive	6th of October	9 branches	Assembly and manuf. Of cars	1500	More than 50 million per annum	- Law 159 for 1981 -Domestic	-U.A.E -Saudi Arabia
Respondent 9	Heavy Industries	Asyut	One big facility	Cement and building material	2500	More than 50 million per annum	-Law 159 for 1981 - private	- U.A.E
Respondent 10	Consumer goods	Cairo & 6th of October	2 big facilities	Consumer goods and chemicals	750	More than 50 million per annum	- Law 203 for 1989 -Domestic	- U.A.E -Libya - KSA
Respondent 11	Electronics and energy	Cairo, Alex. Beni Suef,	2 big facilities	Electronics	200	More than 50 million per annum	-Law 159 for 1981 - Private -Domestic	-Tunisia - Algeria
Respondent 12	Agribusiness	Giza	3 facilities	Grains and animals fodder	100	More than 50 million per annum	- Law 203 for 1989	-None

In-depth interviews series with FDI's in Egypt 2015/201

4.4 Econometric Analysis of the 92 Qualitative Questionnaires

4.4.1 Qualitative and Quantitative Methodologies to Estimate importance of FDI Climate in Egypt

The methodology used in this chapter will follow a two-fold approach. It starts with the coding of qualitative preference categories emanating from Questionnaire respondents into quantitative data. The presence of many independent variables derived from the questionnaire will lead to multicollinearity and absence of precision in highlighting the specific determinants of the investment climate. This problem will be mitigated through the first step of the methodology, which will introduce a **'Principal Component Analysis' (PCA)** originally motivated by Manly (1994) to downsize the number of variables into categories of factors. Once variables are summarized by means of the PCA series, then the second step will be to perform multiple logistic regression to arrive at the subset of factors that are mostly significant to investment climate in Egypt. Apart from this, the 12 in-depth interviews will further extrapolate investment climate determinants at the sector specific level.

4.4.2 Questionnaire Data Coding

Data coding for a questionnaire is a necessary step which transfers qualitative data and ranking scales into numerical and ordinal quantitative codes. This is done through the inspection of each question separately and assigning a numerical code to responses. (Mathers et al., 2009). In our questionnaire, we use both coding techniques nominal and ordinal data coding approaches. On one hand, the '**Nominal data'** allocated nominal numerical codes without any reserved order to data categories**.** An example from the questionnaire will be that reflecting on the percentage of foreign ownership of FDIs in Egypt; which is numerically classified into two categories: the first having less than 50 percent ownership for the FDI and coded as 1 and the second category holding more than 50 percent ownership for FDI, and it reserves the value 2. Both codes 1 & 2 do not signify anything and are mutually exclusive.

On the other hand, for '**Ordinal Data'**, the answer codes are arranged in order of rankings or categories of ordered data and this coding technique is used for the Likert-Scale Matrix questions. Likert scale questions with open-ended entries, enrich datasets with more detailed answers and information of respondents. The in-depth Interviews as well relied an alternative coding technique similar to that developed by Strauss and Corbin (1990); known by '**Open Coding'**. The open coding was built upon converting verbal responses and text strings into numerical codes or text to detect common threads between respondents and it was used for the in-depth interviews.

4.4.3 Econometric specification:

First step of this econometric analysis is to specify the dependent variable which will be the investment climate as per Bastos and Nasir (2004), meanwhile, the set of independent variables included 26 variables

among which are FDI's demographic data such as employees, enterprise entity and percentage of ownership, in addition to doing business enablers, factors capturing economic and political quality of Institutions derived from questionnaire coding ranks. The econometric estimations used followed two steps of analysis and they are:

A) Principal Component Analysis (PCA)

PCA is the preparatory step to proceed with the regression analysis phase. Based on Wheeler and Mody (1992), the PCA represents a statistical approach conducted to examine the interrelations among a set of variables and identify the underlying structure of those variables. It helps Investigators construct one or more artificial series underpinning the behavior of a group of variables. It is computed so that the first or second components together should account for as much of the possible variability in results. It treats at the same time for multicollinearity and possible correlations between the underlying variables by detecting the correlation and reducing the variables into smaller components that are not linearly dependent[160] (Basto and Pereira, 2012)

B) The Logistic Regression Model Analysis

Logistic regression with categorical and ordinal variables assigns numerical values to the data to result in the best fit of linear regression model for the transformed variables. It allows as well for more than one category of both dependent and independent variables through the maximum likelihood estimation to be accounted for. Categorical regression reduces multicollinearity; given that the reference category for the dummy variable does not linearly depend on the intercept term since linear dependency leads to unstable regression estimates. Other virtues of logistic regression is to determine if omission of a variable from the model with all other predictors significantly worsens the predictive power of the model to prevent omitted variables. (Stockburger, 1998; Belsely et al., 2004; Wissmann et al., 2007). The by-products of Logistic regression with categorical variables will result in the Multiple R[161] and coefficients and general framework of the equation 4.1 is written as follows:

$$Y_i' = b_0 + b_1 X_{1i} + b_2 X_{2i} + \cdots + b_k X_{ki} \quad \text{Eq.(4.1)}$$

Where Y_i' : is the transposed vector of dependent variable with two or more categories

[160] The eigenvalues associated with each of the principal components are greater than one, while those associated with each of the second components and third components are considered in the regression as they are greater than one.

[161] Multiple R: includes the R^2 and adjusted R^2 through optimal scaling.

"b" are called regression weights and computed to minimize the sum of squared deviations $\Sigma_{i=1}^{N}(Y_i - Y_i')^2$

$X_{1i}, X_{2i} \ldots \ldots X_{ki}$ represent the set of independent variables transferred into dummy variables with two or more categories or intervals.

Table 4.8: Set of Independent Variables that are Subject to PCA:

Variables	Description	Expected Sign
1) Ownership of FDI	Ordinal Intervals	+ve
2) Revenues	Ordinal Intervals	+ve
3) Illegal Competition	Ordinal Likert scale	-ve
4) Rigidity of Investment Climate	Ordinal Likert Scale	-ve
5) Taxation System	Ordinal Likert Scale	+ve
6) Ownership Rights	Ordinal Likert Scale	+ve
7) Contracts enforcement & Dispute Settlement	Ordinal Likert Scale	+ve
8) Land Accessibility & Pricing	Ordinal Likert Scale	+ve
9) Access to Infrastructure	Ordinal Likert Scale	+ve
10)Trade Openness	Ordinal Likert Scale	+ve
11) Currency FX Fluctuations	Ordinal Likert Scale	-ve /mixed
12) Political Stability	Ordinal Likert Scale	+ve
13) Inflation	Ordinal Likert Scale	-ve
14) Management	Binary	Mixed
15) Employees	Ordinal Intervals	-ve

Source: Based on primary raw data from Egypt's FDI Qualitative Questionnaire and PCA output

4.5 Discussion of Questionnaire Main Results

Table 4.8 gave an overview of the variables that will be subject to PCA analysis introduced to the logistic regression and their expected signs and responsiveness towards variability and improvement of investment climate in Egypt based on questionnaire data coding. PCA results indicated first that '**Egen Value -Based Criteria'**; which is a benchmark measure or cut off point at less than 100 percent to represent how many components or group of variables explain the variability of investment climate.

At this point for Table 4.9 of the PCA, 3 components with their uploaded variables explained 55 percent variance of the original data considering a breakdown of first component explaining 23 percent of variation, second and third components at 17 and 15 percent respectively.

First component included all variables determining protection of investors and property rights; especially for minority investor's rights and all issues related to dispute settlement and contract breach and enforcement. As well political stability dimension is included on this component due to its close relevance to security of investors. **The second component** included all factors facilitating the ease of investing and doing business in Egypt, such as administrative and routine paper work and procedures accompanied with taxation reforms and especially those relevant to Double Taxation agreements. Finally, the **third component** covered all aspects of macroeconomic stability in Egypt such as inflation and FX currency regulation affecting investors. Finally, the output of this Table 4.10 is known by the '**Rotated Component Matrix'**; which gives a listing of the three principal components that explain most of the variability in FDI Climate and its underlying variables of each category**.**

The results obtained for the three components in Table 4.9 were in line with those motivated previously by Júlio et al (2013) and Wernick et al (2014) and Dumludag (2015) for other countries and regions through PCA components. As well all above-mentioned authors asserted to property rights, fiscal freedom, political risks and government stability as the most significant variables affecting investment climate in other regions.

Table 4.9: Total Variance Explained Extraction Method of PCA

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.661	26.152	26.152	3.661	26.152	26.152	3.049	21.782	21.782
2	2.108	15.056	41.208	2.108	15.056	41.208	2.373	16.952	38.734
3	1.824	13.030	54.237	1.824	13.030	54.237	2.170	15.503	54.237

Source: Based on primary raw data from Egypt's FDI Qualitative Questionnaire and PCA output.

Table 4.10 The Rotated Component Matrix

Rotated Component Matrix[a]

	Component		
	1	**2**	**3**
Owner ship rights	.727		
Competition	.702		
Contracts & Disputes settlement	.612	.529	
Access to Infrastructure	.610		-.555
Institutional Political Stability	.608		
Employees	.545		
Economic Institutional Risks			
Facilitating registry		.823	
Taxation system		.801	
Management		.595	
Trade openness		.593	
Access to Land and Pricing			-.809
Currency & FX Flows			.617
Inflation			.592
Revenues			.529

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 6 iterations.

Source: Based on primary raw data from Egypt's FDI Qualitative Questionnaire and PCA output.

The next step involved the results derived from the logistic regression of Table 4.11, when the three PCA were introduced to the model to estimate the influence of the components on Egypt's investment climate. Table 4.11 resulted in a multiple $R^2\ of\ 0.744$; suggesting that the predictors have been relatively a fair fit in explaining the model. It also indicated that economic stability, protection of ownership and investors property rights and legal and fiscal framework are explaining 74 percent of variance in the preference rankings of the investment climate in Egypt. In this case Table 4.12, referred to the most significant component to investors as the macroeconomic instability at highly significant levels which encompassed the increase in foreign exchange fluctuations and inflation rate and how they both decreased the preference ranking of investment climate. The second component in significance was protection of investors rights relevant to all factors of ownership rights, political stability and contract enforcement. Finally, incentives given to investors in facilitating investment registry, access to infrastructure and taxation incentives came at third position in preference according to investors.

Similar results were motivated by Anghel (2004), as he obtained that one standard deviation increase on the indices measuring investors ownership rights and political stability led to a 1.07 percent in improving FDI climate and flows. The remarkable impact of property rights variables (revolutions, coups, assassinations, property rights and demonstrations) were re-emphasized Asiedu (2006) and Harksoon (2010). As a robustness check Kobeissi (2003), Chan and Gemayel (2004), Méon and Sekkat (2005) and Kamaly (2007) had proven robustness with our questionnaire results, when they shed the light on macroeconomic instability and how inflation should be controlled and taxes reformed to attract investors.

Table 4.11: Model Summary for Regression

Multiple R	R Square	Adjusted R Square	Apparent Prediction Error	Expected Prediction Error		
				Estimate[a]	Std. Error	N[b]
.744	.554	.424	.446	.561	.086	74

Dependent Variable: Investment Climate

Predictors: REGR factor score Macroeconomic Stability, Ease of doing business and Investors Rights

Source: Based on primary raw data from Egypt's FDI Qualitative Questionnaire and Catreg Output

Table 4.12: Categorical regression coefficients: Estimating Investment Climate

	Standardized Coefficients		df	F	Sig.
	Beta	Bootstrap (1000) Estimate of Std. Error			
Macroeconomic Instability PCA 3	-.746	.162	6	21.257	.000
Fiscal and legal frame work PCA 2	.514	.343	8	2.241	.034
Investors Rights PCA 1	.420	.090	6	21.890	.000

Dependent Variable: Investment Climate

Source: Based on primary raw data from Egypt's FDI Qualitative Questionnaire and Catreg Output

Another important result extracted from Table 4.13 will distinguish between behavior FDIs managed by foreigners or Egyptians and which are the factors that mostly affect their decisions when they invest in Egypt after the transition. In this case, a second regression will treat foreign management of FDI, as a binary dependent variable to see which of the three PCA 1, 2, 3 factors are mostly crucial to foreign management in FDI companies. As previously mentioned, those components are summarized as follows: PCA1 for protection of Investors' property and ownership rights, PCA2 for legal and fiscal incentives granted to investors and finally PCA 3 for macroeconomic factors and finally Based on Table 4.13, almost 73 percent of variability in behavior between foreign and domestic managers of FDIs' was explained by the importance of legal and fiscal incentives to investors.

Table 4.13: Categorical Regression Coefficients: Estimating which Principal Component factors are important to Management

Coefficients					
	Standardized Coefficients		Df	F	Sig.
	Beta	Bootstrap (1000) Estimate of Std. Error			
Macroeconomic stability PCA 3	.366	.310	9	1.391	.209
Fiscal and legal frame work PCA 2	.734	.243	10	9.118	.000
Investors Rights PCA1	.364	.240	2	2.301	.108

Dependent Variable: management

Source: Based on primary raw data from Egypt's FDI Qualitative Questionnaire and Catreg Output

Foreign investors in this context were mainly concerned with the time frame in which they can register their investments and how their taxation system will be dealt with. As for investors rights and macroeconomic stability, both explained mostly the rest of variability at 37 percent of investment climate. In other words, this result interpreted that the higher the percentage of foreign management in FDIs located in Egypt, the more they are seeking for tax incentives, registry fees and procedures that are essential elements of motivating them to remain or hold their investments. This occurs regardless of the political situation and how the transition is perceived. The results of in-depth interviews will focus on sector specific factors and how they affected investors.

4.6 Policy recommendations driven by commonalities between both in-depth interviews and Questionnaire

In-depth Interview Analysis Results and Commonalities with the Questionnaire

All information of in-depth interviews was gathered from the transcription of excerpts done manually and by software to be given text groups and codes on Table 4.14 of the appendix. In this context, the 12 in-depth interviews were used as well to complement some missing information that was not clarified through the 92 questionnaires about investors. This formation searched meticulous details such as sector profiles and their long-term strategies, market plans and challenges faced by interviewees of FDIs through their daily operations. As well it was favorable to use some of the quotations of top ranked officials and management of FDI firms to obtain insightful comments and opinions. It is important at this stage to highlight the common results and findings of the 12 in-depth interviews compared to the results of the 92 previous questionnaires which are the following:

Land Registry and Access to infrastructure in the Agribusiness Sector

The transcribed software recorded 9 codes from interviewees agreeing to that the access to public utilities and infrastructure is one of principal investment obstacles they are facing in Egypt; especially for agribusiness. They stressed on the need to expand ports, cold supply chains and storage capacity for grains and fresh products. Equally true for the common factor chosen by questionnaire respondents and referred to by the in-depth interviewees which was about land registration, pricing and more effective access to utilities by agribusinesses. A highly-ranked interviewee in an agribusiness FDI commented '**We need ports expansion to be able to reduce congestion and maintain lower prices**'

Concession Rights and contract breach and Disputes Settlement for Petrochemicals

A different perspective was emphasized by petrochemical and heavy industries, as they assured that for them to work at their full capacity, they needed a highly integrated multimodal transportation network that is easily accessed and less costly. In addition to smooth and continuous sources of energy to be supplied such as LNG used intensively in the petrochemicals, since its shortage previously led to production bottlenecks. Six codes were commonly derived between FDIs interviewees in petrochemicals and other heavy material sectors. They commented that the length of time to obtain a license for a new project is still long, and concession rights for drilling and natural gas extraction are very tedious and lengthy.

One of the obstacles facing this sector was particular to the breach of contracts and disputes settlement, which according to interviewees took longer timing that reached up to years through passing into the Egyptian judicial system. The courts were always known for their integrity and unbiasedness, however, they have extremely slow mechanism, causing cases to remain pending in the system for several years. Interviewees from petrochemical sector are optimistic that the new adaptation in the investment law 2015, will simplify the settlement of investment disputes by means of international arbitration 'ICSID Convention and New York Convention'. This mechanism works on giving the opportunity to other state members apart from the Egyptian courts to be arbitrating to resolve investment disputes between the government and foreign investors. The questionnaire as well highlighted on dispute settlement and arbitration as one of prime factors determining investors protection rights at a coefficient of 0.61 demonstrating high degrees of significance

Intellectual Property Rights for Pharmaceuticals and others

Intellectual and ownership rights were one of the pronounced obstacles facing the pharmaceuticals and other sectors with major challenges related to the infringement of copyrights and patents laws enforced. Based on highly ranked management of pharmaceutical FDIs, they suffered from the

existence of counterfeit in active ingredients. In addition, some medicine components are offered by specific public companies at lower prices, besides the requirement of tedious and long registry procedures for new medicines to reach up to three years. Six interviewees gave the same answer regarding this factor and its impact on Egypt's FDI climate. It was also evident, that through the econometric analysis of the questionnaire results, investment property rights caused almost 42 percent variability in the preference ranking of investment climate in Egypt at high significance.

Foreign Exchange Fluctuations Across all sectors

The common threads and responses between in-depth interviewees on the macroeconomic stability factor reached 8 codes across all sectors. One of the highly evident risks showing considerable variability in preference category of investment climate in Egypt at nearly 61 percent was about the fluctuation of foreign currency , the 12 in-depth interviewees had shown consensus on how the instability of foreign exchange and liquidity shortage could harm their investments and prevent them from getting access to banking credit; especially when competing with state-owned firms. The same results were motivated by the respondents of 92 questionnaire, when FX fluctuations caused a 61 percent increase in the variability of macroeconomic factors affecting investment climate in Egypt

The FX shortage emerged in the pharmaceuticals; as it suffered volatility and exposure to FX losses, especially after the unpredicted increase in prices of their imported active ingredients were raised after the devaluation. According to one of the top officials in a pharmaceutical company and his quotation emphasized that **'The current economic situation has prompted some multinationals to consider existing the Egyptian market; especially those with localized facilities'**. Both, the 12 in-depth interviewees and the U.S. Foreign commercial service (2015) latest report on doing business in Egypt, argued that foreign investors are often suffering from a lack of foreign exchange, which causes a delay of payments and continuous arrears of foreign exchange debts accumulating each month. On this respect investors called for more transparency regarding the Central Bank's long-term plans for the country's currency regime.

Illegal Competition in Pharmaceuticals and Automotive

Competition came out as a significant factor for both the questionnaire empirical results and for in-depth interviews respondents at already 6 of FDIs affirmed that they were suffering from illegal y competitive practices. Monopoly was exercised by some of the state owned public companies; especially for pharmaceutical and automotive sectors. This conclusion was driven from the impression of one of the top managers in an automotive FDI about severe competition they face, when he stated, **'It is normal to see new companies enter the market and others exist due to their**

inability to compete, stay or afford to launch different services.' As well for pharmaceuticals FDIs they confessed that they were exposed to a natural monopoly; as the prices of their highly effective imported active ingredients and pharmaceuticals are higher due to FX fluctuations and import duties compared to the public sector's subsidized medicines. Historically for many state owned public enterprises utilities such as energy, electricity and water were always subsidized compared to other private FDIs and this in turn intensified illegal competition.

Management

The difference between the behavior of foreign and domestic management and how they reacted during transition, conveyed through previous econometric estimations, that incentives given to investors to finish their paper work, legal and fiscal status and access to finance caused a 73 percent variability in the decision taken by foreign managers to invest in Egypt. The ease of registry of their activities and businesses, prompt paperwork, incentives offered to investors in access and pricing of land and fair taxation system were all factors encouraging foreign management to strategically decide to relocate to Egypt. One example would be how the foreign management of a heavy constructor and building material FDI had to re- schedule its debts with over 55 banks and institutions; when it bought a heavily indebted business. They were not satisfied with the double taxation agreement imposed and they started negotiating taxation agreement with government officials to reach a compromise. In addition, to quotes from in-depth interviewees which pointed to how foreign management aimed at changing the cultural perception and their corporate social responsibility as investors In Egypt. For example, highly ranked official of a pharmaceutical FDI assured that '**We have a bigger and leading role, as we promote an integrated approach from early diagnosis, treatment, care and disease management'.**

Political instability across all sectors:

Moving on to the quality of political institutions, almost 90 percent of FDI respondents on the questionnaire, in addition to 10 common codes derived from the in-depth interviewees has shown that during late 2011 till 2013 demonstrations and violent acts caused a real shock in the economy. Some investors had to experience halts in daily activities and interruptions in the normal flow of their operations and shortages in some of the imported inputs. One top manager in an agribusiness FDI commented **'Definitely ports congestion has been pronounced in Egypt since the three years of political incidents started and the currency crisis since this time made it hard to finance food and fuel imports.'**

The political stability had it direct implications on some sectors more than others, such as automotive which suffered from loss of revenues streaming from tourism transportation. For petrochemical and gas sector, the years of turmoil turned Egypt from a net exporter to an importer, meanwhile, the arrears of debts of oil investors by the government, caused the delay of new drilling and production investments. One of the side-effects of the political turmoil caused the deprecation of the Egyptian pound due to shortages in production and lower receipts from tourism and accordingly the country's foreign reserves were depleted. As well there has been an evident difference between how foreign and Egyptian managers and administrative bodies of FDIs perceived the impact of 2011 incidents on their performance. Egyptian managers were prepared and mentally convinced that this is a hard transition and they will suffer to some extent, however, they believed that they should proceed with their operations in a conservative manner without going into new initiatives to expand their facilities and investments except after the conditions in Egypt are more stable. One of their key quotes asserted that '**We will adopt a long-term strategy to investing in Egypt and we follow an ambitious plan to expand across Egypt, when the political situation cools down'** Another Heavy equipment FDI management team for oil services commented '**We have seen many cycles over the years and as a business we try to navigate through those cycles.'**

Most of the in-depth interviewees apart from 2 respondents stressed on the fact that they will be holding their investments in Egypt and most ACTs for the medium term of two years and, they will follow a' **'Wait and hold Approach'** without intentions to expand their investments in the short term. They would expand conditional on the improvement of macroeconomic climate and efficiency of regulatory framework governing institutions. During this transition, respondents believed that there are different means to mitigate their short-term risks; as entering in partnerships and joint ventures with other investors, horizontal diversification into other markets and sectors, which was as well illustrated by Lewandowski (1997) to protect against exposure to risks. In fact, one highly ranked managers in a heavy equipment FDI oriented to serve petrochemicals emphasized, **'During 2010, we thought of diversifying our risks by 10 deals to include investments in millennium offshore services outside MENA region'.**

In summary, the main common results for in-depth interviews and questionnaire that both foreign and Egyptian investors agreed on the three main criteria: protecting their property rights and interests where they invest, giving them fiscal and paperwork stimulus and providing stable macroeconomic performance as indispensable for their investment decision and relocation in Egypt. At the same time, in-depth interviewees provided 10 common answers that political instability and the return of turmoil could deeply threaten their activities, meanwhile, the 92 questionnaire respondents exhibited a strong

consensus on macroeconomic environment at 70 percent variability on affecting the business climate in Egypt.

4.7 Conclusion

There is no doubt that the political turmoil MENA region is passing came after years of absence and fragility of its countries institutions. The impact of the most recent turmoil in the region were contagious, when symptoms of bad governance led to macroeconomic instability and subdued growth rates and high-income disparities across the region's countries. They also had their negative repercussions on FDI performance and climate, which was evident in all countries including Egypt. This paper attempted to investigate the reaction of small and medium FDI, in light of the fragility of Egypt's economic and political institutions that were intensified during the transition. In this chapter, we addressed different approaches through the employment of a qualitative questionnaire covering 92 respondents directed to Medium-sized FDI's in Egypt. To complement the questionnaires, we conducted 12 in-depth interviews held with a selected group of FDIs across different sectors.

After the questionnaires were conducted, and data was empirically coded, the econometric methodologies were employed. The estimations resulted in three categories of factors which were mostly significant: investors property rights, incentives granted to investors and finally macroeconomic stability influencing investment climate. When those three components were introduced to the logistic regression, they all caused a 74 percent variability in Egypt's investment climate and rest of variance was explained by the difference between the behaviour of foreign and Egyptian management in perceiving their investments.

Similar results were obtained by the 12- in-depth interviews; however; with emphasis on sector specific problems facing investors such as illegal competition, property and ownership rights very evident in pharmaceutical and automotive sectors. Concession rights, contract breach and disputes settlement to be seriously considered for petrochemicals. As well agribusinesses suffered from long land registry procedures and lack of access to infrastructure and soaring energy. Therefore, 70 percent of in-depth interview respondents in Egypt preferred to go for a ˊWait and Watch Approach ˋrather than expand their investments; especially after the 2011 revolts and during the transition. The recent amendments in Egypt's investment law 17 of 2015 are taking serious steps towards removal of many obstacles facing investors and the results motivated by this chapter suggest that they should focus as well on protecting investors property rights, granting worthwhile fiscal, financial and procedural stimulus to encourage FDIs, especially in remote and underserviced areas. Finally, the close monitoring of the macroeconomic conditions; especially with respect to FX fluctuations, transfer of capital and prices of imported inputs is essentially needed for a healthy acceptable investment climate as supported previously by questionnaire results

Future research avenues are wide open and still has so much to identify and treat such as sector specific and general regulatory obstacles facing multinationals in underinvested areas in MENA countries and generally economies going through transition. One of the additional research prospective that could contribute to this topic, is the use of precise variables and data to deal with cases of particular countries. Data extracted from the number of filed cases against investors' rights violation and breach or the threshold of FX transfers, import duties imposed on inputs and so forth across several sectors could help to detect, the reason behind failure of institutions to accommodate to investors' needs. As well investment laws and regulations should take into consideration the theory of OLI and how it affects the rationale behavior of investors. As long as investments are secured, protected, motivated and work with well-regulated institutions designed to embrace and fulfil their requirements, investment climate will always remain enticing to FDIs under any circumstances. We all agree that many countries pass through transitions and shifts at one moment of their history and this does not prevent investors from choosing to invest in those countries, however what really causes a problem is the existence of a gap between the requirements of investors and what the country's institutions offers them, as in the case of Egypt.

This is the Original questionnaire used for 92 FDI Multinationals in Egypt and authenticated by Central Agency for Public Mobilization and Statistics (CAPMAS)

دعم و تطوير مناخ الإستثمار بمصر

دورالمؤسسات السياسية والإقتصادية المصرية للنهوض بالإستثمارالمحلى و الأجنبى

"مسح المنشآت الاقتصادية متوسطة الحجم"

الهدف الأساسى من هذا الإستبيان هو بلورة و توضيح بعض المقومات الأساسية التي تساعد على توفير المناخ الصحي لنمو الإستثمارات المحلية والأجنبية للمنشآت متوسطة و كبيرة الحجم بجمهورية مصر العربية وأثرها على تطوير و تحسين الأداء الإقتصادى المصرى و زيادة الإستثمارات كأحد ركائز نمو الدخل القومى المصرى . كما يهدف الإستبيان لكشف أولويات المستثمر عند إختيار البيئة الخصبة للإستثمار بجانب تسليط الضوء على اهم العوامل التى تساعد على نموالإستثمارات المحلية و الأجنبية بمختلف القطاعات الصناعية والخدمية بمصر. من المنتظر ان يقوم الإستبيان بتقديم بعض التوصيات التى تساعد على تهيئة مناخ أفضل للإستثمار بجمهورية مصر، بالإضافة الى معالجة و تذليل بعض العقبات التى تواجه المستثمرين بشكل عام. من الأفضل ان تكون اجاباتكم عن الإستبيان مقصورة على تجربتكم الخاصة كمنشآت فى أداء الأعمال بمصر و الدول العربية فقط. نؤكد السرية التامة للبيانات والمعلومات المجمعة من الإستبيان وانه لن يتم إستخدام أو نشر أسمائكم أو أسماء منشأتكم فى أى وثيقة تنتج عن هذا الإستبيان.

اسم المنشأة.....

الكود .....□□□□□□□

عنوان النشأة .....

المدينة.....

مصانع أو فروع إذا وجد ؟ نعم □ كم عددها□□□

نشاط المنشأة بالتفصيل..... ISIC كود للقطاع□□□

توزيع نسب الأنشطة التالية من إجمالى دخل المنشأة:

الصناعة.....% الخدمات.....% التجارة.....% أخرى .....%

"البيانات سرية و لا تستخدم فى غير أغراض البحث العلمى"

من فضلك إختار الاجابة الصحيحة التى تتناسب مع بيانات منشأتك بوضع علامة أمام الاختيار المناسب:

الجزء الاول: معلومات عامة عن المنشآة :

1- ما هو الكيان القانونى الحالى لمنشأتك؟(يمكنك الجمع بين إختيارين)

فردية ☐
تضامن ☐
توسطية بسيطة ☐
مساهمة ☐
ذات مسؤلية محدودة ☐
فرع لشركة أجنبية ☐
شركة قطاع عام ☐
أخرى حددها ☐

2- حدد القانون الذى تتبع له منشأتك ؟

قانون هيئة المجتمعات العمرانية الجديدة ☐
قانون 159 لسنة 1981 ☐
قانون 203 لسنة 1989 ☐
قانون 95 لسنة 1992 ☐
قانون 8 لسنة 1997 ☐
قانون 83 لسنة 2002 ☐
أخرى (حددها)..... ☐

3- ما هى نسب المساهمة فى ملكية منشأتك؟(يمكنك الجمع بين إختيارين)

خاص أقل من 50% ☐ أكثر من 50%☐
محلى أقل من 50% ☐ أكثر من 50%☐
عربى أقل من 50% ☐ أكثر من 50%☐
أجنبى أقل من 50% ☐ أكثر من 50%☐
حكومى أقل من 50% ☐ أكثر من 50%☐
أخرى حددها ..... أقل من 50% ☐ أكثر من 50%☐

4- حدد العدد التقريبى للمنشآت التابعة التى تمتلكها منشأتك فى مصر مثل: (يمكنك الجمع بين إختيارين)

متاجر: أقل من 30 ☐ أكثر من 30☐
مراكز خدمة: أقل من 30 ☐ أكثر من 30☐
منافذ بيع : أقل من 30 ☐ أكثر من 30☐

5- حدد بأى مكان بالعالم يوجد المقر الرئيسى لنشاط منشأتك؟

غرب أوروبا ☐
أمريكا الشمالية ☐
شرق أوروبا ☐
آسيا ☐
الشرق الاوسط و شمال أفريقيا ☐
أفريقيا الوسطى و جنوب أفريقيا ☐
أمريكا الجنوبية ☐

6- ما هو اجمالى عدد العاملين بالمنشأة ؟

أقل من 100 عامل ☐
أكثر من 100 الى 250 عامل ☐
أكثر من 250 الى 500 عامل ☐

7- الى أى قطاع ينتمى النشاط الاساسى للمنشأة ؟ (المنشآت متعددة النشاطات يمكن ان تختار أكثر من إختيار)

- ☐ استصلاح الاراضى و الزراعة و المزراع السمكية
- ☐ الاغذية و المشروبات
- ☐ المطاط و المواد البلاستكية
- ☐ المنتجات المعدنية
- ☐ معدات النقل الثقيلة
- ☐ الاتصالات
- ☐ الصناعات الثقيلة (الاسمنت ،الرخام، التعدين والمحاجر)
- ☐ المطاحن
- ☐ المنسوجات والملابس الجاهزة
- ☐ الجلود
- ☐ المنتجات الخشبية والأساس
- ☐ التعدين و مشتقاته من منتجات
- ☐ منتجات الفحم
- ☐ الألكترونيات
- ☐ الكهرباء والمياه و الغاز الطبيعى
- ☐ الصناعات الدقيقة
- ☐ التصدير و الإستيراد
- ☐ السياحة
- ☐ التعليم
- ☐ الفندقة و المطاعم
- ☐ المقاولات
- ☐ الإسكان والتعمير
- ☐ القطاع المصرفى والخدمات المالية
- ☐ التأمين
- ☐ الخدمات الاخرى

8-بأى فئة يمكنك تصنيف حجم إيرادات منشأتك حاليا؟

- ☐ إيرادات سنوية أقل من 50 مليون جنيه
- ☐ إيرادات سنوية أكثر من 50 مليون جنيه

9- هل لدى منشأتكم شركات تابعة بدول عربية أخرى؟ (يمكنك إختيار أكثر من إجابة فى حال وجود استثمارات بأكثر من دولة)

- ☐ المغرب
- ☐ الكويت
- ☐ الإمارات
- ☐ الاردن
- ☐ ليبيا
- ☐ البحرين
- ☐ قطر
- ☐ تونس
- ☐ المملكة العربية السعودية
- ☐ سوريا
- ☐ الجزائر
- ☐ جيبوتى
- ☐ العراق
- ☐ موروتانيا
- ☐ الضفة و الاراضى المحتلة
- ☐ لبنان

10- هل حصلت منشأتك على أحد شهادات الجودة و الإدارة مثل ISO 9001,ISO 14001 أو غيرها؟

- ☐ نعم
- ☐ لا
- ☐ جارى الطلب عليها
- ☐ لا أعلم

11-هل قامت منشأتك خلال العامين الماضيين بإبتكار طريقة إنتاج جديدة أو إنتاج منتج جديد أو الحصول على براءة إختراع و تسجيله بإسم المنشأة؟

نعم ☐
لا ☐
جارى إنتاج منتج جديد ☐
مرحلة البحث العلمى ☐
جارى تسجيل براءة المنتج ☐
لا أعلم شيئ عن الامر ☐

الجزء الثانى: معلومات عن المعوقات العامة التى تعرقل نمو الاستثمارات بمصر

يرجى تحديد درجة صعوبة العوائق التى تواجه تشغيل و نمو منشأتك عن طريق مقياس تدريجى يتضمن الخمس نقاط التالية :

لا توجد مشكلة =1
عائق صغير=2
عائق متوسط=3
عائق كبير=4
عائق معرقل للنشاط =5

12-إى مدى تمثل هذه العوامل معوقات بالنسبة لإستثماراتك و تشغيل منشأتك بمصر خلال العامين القادمين ؟

المعوقات	لا توجد مشكلة	عائق صغير	عائق متوسط	عائق كبير	عائق معرقل للنشاط
الحصول على التمويل (مثل الضمانات)	☐1	☐2	☐3	☐4	☐5
المنافسة غير القانونية	☐1	☐2	☐3	☐4	☐5
القوانين المقيدة للاستثمار	☐1	☐2	☐3	☐4	☐5
زيادة الإجراءات الروتينية لإنشاء وتشغيل الشركة	☐1	☐2	☐3	☐4	☐5
الفساد	☐1	☐2	☐3	☐4	☐5
معدلات و إجراءات الضرائب	☐1	☐2	☐3	☐4	☐5
الجمارك وصلابة بعض من القوانين التجارية	☐1	☐2	☐3	☐4	☐5
فرص السوق محدودة (احتكار أو عدد محدود من المنافسين)	☐1	☐2	☐3	☐4	☐5
إنتهاك حقوق الملكية العامة و الفكرية	☐1	☐2	☐3	☐4	☐5
العقود و قوانين تسوية النزاعات	☐1	☐2	☐3	☐4	☐5
قوانين العاملين و التأمينات الاجتماعية	☐1	☐2	☐3	☐4	☐5
الحصول على الاراضى و تسعيرها	☐1	☐2	☐3	☐4	☐5
إدخال المرافق العامة مثل (المياه و الكهرباء و الانترنت)	☐1	☐2	☐3	☐4	☐5
أذا كان لديكم معوقات أخرى برجاء تحديدها	☐1	☐2	☐3	☐4	☐5

13- ما هى خطة الإنتاج والنشاطات المتوقعة لمنشأتكم خلال العامين القادمين؟ (يرجى أن يكون إختيار واحد فقط)

توسيع القدرة الإنتاجية ☐
البقاء على الوضع الحالى ☐
تقليل القدرة الإنتاجية ☐
لا أعرف لعدم وضوح الرؤية ☐

14- إذا كان لديكم إستثمارات بدول عربية أخرى و خاصتا المتأثرة بالأحداث السياسية المتصاعدة خلال الثلاث أعوام الاخيرة مثل ثورات الربيع العربية (بتونس و سوريا واليمن و ليبيا. هل أدت الإضطرابات السياسية الأخيرة الى تغير خطة إستثماراتكم بهذه الدول؟

زيادة الإستثمارات ☐

تثبيت الإستثمارات ☐
سحب الإستثمارات ☐
لا أعرف لعدم وضوح الرؤية ☐
ليس لدينا إستثمارات بهذه الدول ☐

15- إذا كان لديكم إستثمارات بدول عربية أخرى بجانب مصر ولكن لم تتأثر شديدا بالأحداث السياسية المتصاعدة بالعالم العربى خلال الثلاث أعوام الأخيرة مثل ثورات الربيع العربية (المغرب و الاردن و لبنان و الدول الخليجية) ؟ هل أدت الإضطرابات السياسية الى تغير خطة إستثماراتكم بهذه الدول؟

زيادة الإستثمارات ☐
تثبيت الإستثمارات ☐
سحب الإستثمارات ☐
لا أعرف لعدم وضوح الرؤية ☐
ليس لدينا إستثمارات بهذه الدول ☐

16- هل تخطط منشأتك الى إتخاذ أى من المبادارات التالية خلال العامين القادمين؟(يمكنك الجمع بين إختيارين)

إنشاء خط إنتاج جديد. ☐
خطة توسع فى بعض خطوط الإنتاج والمنشآت الحالية ☐
وقف استمرار بعض خطوط الإنتاج لبعض المنتجات غير المربحة ☐
مبادرة مشروع إنتاجى مشترك جديد مع شريك محلى ☐
مبادرة مشروع إنتاجى مشترك مع شريك أجنبى ☐
إنكماش فى النشاط الإنتاجى للفترة الحالية والمستقبل القريب ☐
الحصول على إتفاقية ترخيص جديدة لمنتج أو براءة إختراع

الجزء الثالث: دورالمؤسسات السياسية والاقتصادية المصرية للنهوض بالاستثمار

يرجى تحديد درجة الأهمية للعوامل المحفزة للإستثمار بمصر و تأثيرها الواضح على نمو منشأتك عن طريق مقياس تدريجى يتضمن الخمس نقاط التالية :
ذات أهمية قصوى=1
هام جدا=2
متوسط الأهمية =3
قليل الأهمية=4
غير مؤثر=5

17- إذكر أهم العوامل الإجابية التالية المحفزة على زيادة إستثماراتك بمصر خلال العامين القادمين

العوامل الإجابية المحفزة للإستثمار	ذات أهمية قصوى	هام جدا	متوسط الأهمية	قليل الأهمية	غير مؤثر
زيادة و سهولة مصادر التمويل (تسهيلات بنكية إئتمانية)	☐1	☐2	☐3	☐4	5☐
سهولة و سرعة الحصول على المرافق العامة لمنشأتك (مياه , كهرباء و طرق بالمدن الجديدة)	☐1	☐2	☐3	☐4	5☐
قلة التكاليف الجانبية لتسهيل الإجراءات (بالجمارك و الضرائب و التراخيص)	☐1	☐2	☐3	☐4	5☐
تحسن مؤسسات الدولة مثل الهيئات الجمركية	☐1	☐2	☐3	☐4	5☐

استقرار المؤشرات الإقتصادية الرئيسية (التضخم و سعر الصرف)	☐1	☐2	☐3	☐4	5☐
زيادة مصدقية بتطبيق قوانين الإستثمارالصحيحة خاصتا بفض المنزاعات التجارية	☐1	☐2	☐3	☐4	5☐
الحرص على حماية حقوق الملكية العامة و الخاصة و الفكرية و سرية بيانات المنشآت	☐1	☐2	☐3	☐4	5☐
خلق سياسة إعلامية لتشجيع الاستثمارين الى الاستثمار بالدولة	☐1	☐2	☐3	☐4	5☐
تسهيل إجراءات إنشاء الشركة و قوانين التعاقد	☐1	☐2	☐3	☐4	5☐
شفافية و سهولة الحصول على البيانات المصرح بها	☐1	☐2	☐3	☐4	5☐
تطبيق قوانين العاملين	☐1	☐2	☐3	☐4	5☐
عوامل أخرى ، إذكرها	☐1	☐2	☐3	☐4	5☐

18- أى من عوائق الإستقرارالسياسى يعتبر أكثر تأثيرا على إستثماراتك بأى مكان بشكل مباشر ؟ (يمكنك الجمع بين 3 إختيارات)

تعديلات بقوانين الإستثمار ☐
الإخلال بقوانين العقود و سحب الضمانات الحكومية ☐
القيود على بعض القوانين المصرفية للحوالات بعملات أجنبية ☐
الوقفات الإحتجاجية و الإضطرابات المدنية المتكررة ☐
فقد مصدقية الدولة ☐
التأميم و المصادرة ☐
أعمال العنف و الارهاب ☐
الحروب ☐

19- هل منشأتك لجأت للتأمين على غالبية ممتلكتها؟

نعم تأمين جزئى (جزء من الممتلكات) ☐
تأمين كامل (كل الممتلكات) ☐
ليس لدى علم بهذا الامر ☐

20-هل احتجت لتوظيف شركة إستشارية محلية أو أجنبية لتسهيل إجراءات التسجيل لمنشأتك

نعم ☐
لا ☐
لا أعلم عن هذا الامر ☐

21- يرجى تحديد درجة الأهمية للمخاطرالإقتصادية التى من الممكن أن تتعرض لها منشأتك عن طريق مقياس تدريجى يتضمن الخمس نقاط التالية :

مخاطر ذات أهمية قصوى=1
مخاطر هامة=2
متوسط الخطورة =3
قليل الخطورة=4
غير مؤثرة بالنسبة لى=5

المخاطر الإقتصادية التى من الممكن أن تتعرض لها منشأتك	**ذات أهمية قصوى**	**هام جدا**	**متوسط الأهمية**	**قليل الأهمية**	**غير مؤثر**

التقليل من نسبة الإعفاء الضريبى على الشريحة التى تنتمى لها منشأتك	☐1	☐2	☐3	☐4	☐5
رفع سعر فائدة الإقتراض على الإستثمارات	☐1	☐2	☐3	☐4	☐5
قلة الدعم التمويلى و المصرفى المحفز للمستثمرين (الضمانات البنكية للمشروعات الصغيرة)	☐1	☐2	☐3	☐4	☐5
التضخم و زيادة أسعار مدخلات المنتج مثل المواد الخام و الطاقة والمرافق و العمالة	☐1	☐2	☐3	☐4	☐5
صرامة قوانين العمل ورفع باقات التأمينات الإجتماعية و التأمين الصحى و المعاشات للعاملين	☐1	☐2	☐3	☐4	☐5
أزمات السيولة و إرتفاع سعر الصرف للعملات الأجنبية	☐1	☐2	☐3	☐4	☐5
زيادة نسبة التكاليف الجانبية أو الزائدة بهدف تسهيل إجراءات الإنشاء للشركة	☐1	☐2	☐3	☐4	☐5
وجود مجموعة من جماعات الضغط و الشركات الكبيرة تقوم بإحتكار السوق و عرقلة صغار المستثمرين من الدخول به	☐1	☐2	☐3	☐4	☐5
مخاطر أخرى	☐1	☐2	☐3	☐4	☐5

22- اذكر أهم سببين أساسيين للتأثير على زيادة أو نقص حجم العمالة بمنشأتك؟

الانظمة و القوانين المتعلقة بالتوظيف والاستغناء عن العاملين☐
أتفاقيات و ضغوط إتحاد العمال ☐
الحد الادنى للأجور ☐
كثرة الضمانات و التأمينات الإجتماعية ☐
الوقفات الإحتجاجية و الإضطربات المتكررة للعمال ☐
أسباب أخرى ☐

يرجى تحديد درجة أهمية الوسائل الوقائية لمنشأتك من تأثيرات ضعف الإستقرار السياسى و تأثيره الواضح على نمو منشأتك عن طريق مقياس تدريجى يتضمن الخمس نقاط التالية :
ذات أهمية قصوى=1
هام جدا=2
متوسط الأهمية =3
قليل الأهمية=4
غير مؤثر=5

23- ما هى بالنسبة لمنشأتك أهم الوسائل المحفزة لمناخ الاستثمار بشكل عام؟

الوسائل الوقائية المحفزة للاستثمار	**ذات أهمية قصوى**	**هام جدا**	**متوسط الأهمية**	**قليل الأهمية**	**غير مؤثر**
الدخول بمشروع مشترك أو تحالف مع شريك محلى أو أجنبى	☐1	☐2	☐3	☐4	☐5
دراسات جدوى جدية لعوامل المخاطرة قبل الإستثمار فى أى مكان	☐1	☐2	☐3	☐4	☐5
الإستثمارالتدريجى المتحفظ أو دخول السوق تدريجيا بالإستثمارات	☐1	☐2	☐3	☐4	☐5
التعاقد مع مؤسسة إستشارية متخصصة لإدارة إستثماراتك	☐1	☐2	☐3	☐4	☐5
إحترام سيادة القانون و لوائح الشركات و التعاون للصالح العام	☐1	☐2	☐3	☐4	☐5

تخصيص علاوة تأمينية تحمى من مخاطر السوق (مثل مخصصات للظروف الطارئة)	☐1	☐2	☐3	☐4	5☐
مبادلة مخاطر الإئتمان Credit Default Swap(يقوم صاحب المنشأة بشراء مبادلة مالية تضمن ان يقوم البائع بدفع تعويض له فى حالة تخلفه عن سداد ديونه	☐1	☐2	☐3	☐4	5☐
التغطية والتحوط ضد مخاطرالسوق المستقبلية عن طريق التوسع بعدد من الاسواق الاخرى	☐1	☐2	☐3	☐4	5☐

Academic Survey Supporting Foreign Direct Investment Climate in Egypt: The Role of Political and Economic institutions in promoting Foreign Direct Investments

"Sample of Small and Medium Enterprises"

This is an academic face to face and online questionnaire designed to highlight the main determinants of Foreign Direct investment climate in Egypt, especially during its political transition and to discover strategies, preferences, and factors encouraging investors to enter or hold investments in a specific market. The survey targets the increase of FDI inflows in Egypt and it aims at seeking alternative strategies, policies and approaches to help in improving the Egyptian investment climate. It helps in detecting the investor's incentives and the adequate legislations in the host country's best interest, as well as, increasing investor's confidence and willingness to invest. The information contained in this survey will be subject to information privacy laws and is not to be used except for academic purposes and under the consent and written permission of interviewed enterprises. We are not to disseminate company's information that was not publicly announced or published, such as the company's profile, names, officials, financials, innovations and press releases. If you have any technical problems or difficulty in understanding any of the questions, please contact at esmat.kamel76@gmail.com. References used in the survey's design are the following: Central Agency for Public Mobilization and Statistics (CAPMAS), CEPII paper on institutional Determinants of Foreign Direct Investments, Multilateral Investment Guarantee Agency (MIGA) 2013 and UNCTAD World Investment Report 2014

-Enterprise Name

…….

-Enterprise Code : .....☐☐☐☐☐☐

-Address: .....

-City .....

-Subsidiaries or Branches: If exists? Yes☐ and How many are they ☐☐

-The Enterprise's main activity..... ISIC Code ☐☐

-Enterprise Activities % shares:

Industrial …….% Commercial ……% Services…….% Others……

Kindly choose the convenient answer that matches with the information of your enterprise by ticking in the box in-front

Part I: Information on the Enterprise:

1- Indicate the legal structure of your enterprise. (More than one choice is acceptable)

Sole Proprietorship ☐
Corporation ☐
Limited Partnership Corporation ☐
Joint Stock Company ☐
Limited Liability ☐
Subsidiary of foreign company ☐
Public enterprise ☐
Others specify ☐

2- Indicate the law under which your enterprise works

The New law of for Authority of Urban Communities
Law # 159 for 1981 ☐
Law # 293 for 1989 ☐
Laws # 95 for 1992 ☐
Law # 8 for 1997 ☐
Law # 83 for 2002 ☐
Others (specify…….) ☐

3- How are the percentages of ownership distributed in your enterprise? (More than one choice is acceptable)

Private	less than 50% ☐	more than 50% ☐
Local	less than 50% ☐	more than 50% ☐
Gulf	less than 50% ☐	more than 50% ☐
Foreigners	less than 50% ☐	more than 50% ☐
Public	less than 50% ☐	more than 50% ☐
Others specify …	less than 50% ☐	more than 50% ☐

4- **Identify the approximate number of subsidiaries that your enterprise owns in Egypt** (More than one choice is acceptable)

Retail Store	less than 30☐	more than 30 ☐
Service Centre	less than 30☐	more than 30 ☐
Sales point	less than 30☐	more than 30 ☐

5- **Mention the location of your headquarters world-wide** (More than one choice is acceptable)

West Europe	☐
North America	☐
East Europe	☐
Asia	☐
Middle East and North Africa	☐
Central and South Africa	☐
South America	☐

6- The total number of employees in your enterprise

Less than 100 employees	☐
More than 100 but less than 250 employees	☐
More than 250 but less than 500 employees	☐

7- The Main activity and sector under which your enterprise is classified (More than one choice is acceptable)

Agricultural, forestry or fishing	☐
Food, beverages and tobacco	☐
Rubber and plastics	☐
Metallurgical products	☐
Transport equipment	☐
Telecommunications	☐
Heavy industries (cement, marvel, mining and quarrying)	☐
Textile and clothing	☐
Leather	☐
Wooden products	☐
Petroleum related products	☐
Coke products	☐
Electronics	☐
Electricity, water and gas	☐
Precision industries	☐
Trade	☐
Tourism	☐
Education	☐
Hotels and restaurants	☐
Construction	☐
Other services	☐

8- Under which category will your revenues fall?

Annual Revenues less than 50 million Egyptian pounds	☐
Annual Revenues more than 50 million Egyptian Pounds	☐

9- Does your enterprise have subsidiaries in others Arab countries? (More than one choice is acceptable)

Morocco	☐
Kuwait	☐
United Arab Emirates	☐
Egypt	☐
Jordan	☐
Libya	☐
Bahrain	☐
Qatar	☐
Tunisia	☐
Saudi Arabia	☐
Syria	☐
Algeria	☐
Djibouti	☐
Iraq	☐
Palestine and West Bank	☐
Lebanon	☐
Mauritania	☐

10- Did your enterprise receive the ISO 9001 and ISO 14001 certificates of Quality and Management or others?

Yes	☐
No	☐
In progress	☐
I am not aware	☐

11- Over the last two years, did your enterprise develop a new product, production line or receive any patent and copy right for an invention?

Yes	☐
No	☐
New Product	☐
Scientific investigations	☐
Patent of a new product	☐
I am not aware	☐

Part II: Obstacles hindering Foreign Direct Investments Climate in Egypt

Kindly mark the level of obstacles facing the growth of your enterprise based on the Likert graded scales which encompasses 5 scales as follows:

No obstacle at all=1
Minor Obstacle=2
Normal Obstacle=3
Considerable Obstacle=4
Major Obstacle =5

12- To what extent those factors are considered obstacles hindering your investments and operation of your Enterprise in Egypt over the next two years?

Obstacles	No Obstacle	Minor Obstacle	Normal Obstacle	Considerable Obstacle	Major Obstacle
Lack of Access to Finance (Guarantees)	☐ 1	☐ 2	☐3	☐ 4	☐ 5
Illegal Competition	☐ 1	☐ 2	☐3	☐ 4	☐ 5
Restrictive regulations	☐ 1	☐ 2	☐3	☐ 4	☐5
Bureaucratic procedures to establishment of enterprise	☐ 1	☐ 2	☐3	☐ 4	☐5
Corruption	☐ 1	☐ 2	☐3	☐ 4	☐5
High Taxes rates procedures	☐ 1	☐ 2	☐3	☐ 4	☐5
High custom duties	☐ 1	☐ 2	☐3	☐ 4	☐5
Limited market access (Monopoly)	☐ 1	☐ 2	☐3	☐ 4	☐5
Abuse of property rights	☐ 1	☐ 2	☐3	☐ 4	☐5
Contracts and disputes settlement	☐ 1	☐ 2	☐3	☐ 4	☐5
Employees laws social security	☐ 1	☐ 2	☐3	☐ 4	☐5
Access to land and its pricing	☐ 1	☐ 2	☐3	☐ 4	☐5
Lack of Public Utilities (water, electricity and gas)	☐ 1	☐ 2	☐3	☐ 4	☐5
Other obstacles (specify)	☐ 1	☐ 2	☐3	☐ 4	☐5

13- What are your production plans and upcoming activities of your enterprise over the next two years?

Increasing the production capacity ☐
Holding all investments ☐
Reducing production capacity ☐
I don't know ☐

14-If you have other investments in other Arab countries and especially Arab countries in transition impacted by political upheavals over the last three years (Tunisia, Syria, Yemen, Libya, …); given the latest political disruptions in those countries, did it affect your investment plan in those countries?

Increase Investments ☐
Hold Investments ☐
Withdraw Investments ☐
I can't clearly indicate ☐
No investments ☐

15- Are you planning to take any new initiatives over the next coming years?

Establishing a new production line ☐
Expansions plan in any of the production lines and facilities ☐
Halts of some unprofitable products ☐
Expansion plan with a new local partner ☐
Expansions plan with a new foreign partner ☐
Diminishing production over the three coming years ☐
Licensing a new product, patent or copy right. ☐

Part III: Role of Political and Economic Institutions in Determining Foreign Direct Investment Climate in Egypt

Kindly mark the level of importance of the factors determining your incentives to invest in Egypt and the growth of your enterprise based on the Likert graded scale which encompasses 5 scales as follows:

Significantly Important =1
Very Important =2
Important = 3
Less Important =4
Not Important =5

16- Select from the matrix below the most significant factors which will give you incentives to invest in Egypt over the next two years

Incentives	Significantly Important	Very Important	Important	Less Important	Not Important
Facility and access to Financing (banking guarantees)	☐ 1	☐ 2	☐3	☐ 4	☐ 5
Access to Public infrastructure	☐ 1	☒ 2	☐3	☐ 4	☐ 5
Less bribes	☐ 1	☐ 2	☐3	☐ 4	☐5
Improving public institutions (custom duties)	☐ 1	☐ 2	☐3	☐ 4	☐5
Stability of economic indicators	☐ 1	☐ 2	☐3	☐ 4	☐5
Increasing credibility through investment regulations	☐ 1	☐ 2	☐3	☐ 4	☐5
Protecting investors and property rights	☐ 1	☐ 2	☐3	☐ 4	☐5
Media campaign to encourage investments	☐ 1	☐ 2	☐3	☐ 4	☐5
Facilitate the establishment of new enterprises	☐ 1	☐ 2	☐3	☐ 4	☐5
Transparency and access to information	☐ 1	☐ 2	☐3	☐ 4	☐5
Enforcement of employees' laws	☐ 1	☐ 2	☐3	☐ 4	☐5
Others	☐ 1	☐ 2	☐3	☐ 4	☐5

17- Select which of the following factors concerning political instability negatively impacts your investments directly (More than one choice is acceptable)

Amendments in the investment law ☐
Dishonouring of contracts and withdrawal of guarantees ☐
Restrictions on monetary regulations of foreign currency ☐
Demonstrations and riots ☐
Loss of institutions' credibility ☐
Nationalization and expropriations ☐
Terrorism and violent acts ☐
Wars ☐

18- Do you have a full coverage security policy for your establishments?

Yes, partial security for (part of my facilities) ☐
Full Coverage security (all facilities) ☐

Not that I am aware of ☐

19- Did you need the consultancy of local or foreign investment companies to facilitate the procedures of registry of your establishments?

Yes ☐
No ☐
Not that I am aware of ☐

20- Select from the matrix below the most significant economic risks which your enterprise and investments could be exposed to incentives to in Egypt over the next two years

Extremely Risky =1
Very Risky =2
Risky = 3
Less Risky =4
Not Risky =5

Economic Risks	Extremely Risky	Very Risky	Risky	Less Risky	Not Risky
Reducing the tax exemptions	☐ 1	☐ 2	☐3	☐ 4	☐ 5
Increasing interest rates on loans	☐ 1	☒ 2	☐3	☐ 4	☐ 5
Less banking incentives to investors	☐ 1	☐ 2	☐3	☐ 4	☐5
Inflation rate and rising prices of inputs	☐ 1	☐ 2	☐3	☐ 4	☐5
Increasing social security pay for employees	☐ 1	☐ 2	☐3	☐ 4	☐5
Liquidity and Foreign exchange shortage	☐ 1	☐ 2	☐3	☐ 4	☐5
Sunk costs of establishment	☐ 1	☐ 2	☐3	☐ 4	☐5
Presence of cartels and monopolies	☐ 1	☐ 2	☐3	☐ 4	☐5
Other risks	☐ 1	☐ 2	☐3	☐ 4	☐5

21- **Choose the most two important factors influencing the increase or decrease of employees in your enterprise? (**More than one choice is acceptable)

Laws and regulations concerned with employment and firing of employees ☐
Agreements and pressure groups from employee's syndicates ☐
Minimum legal wages ☐
Presence of many guarantees and social security measures ☐
Demonstration and repeated riots of employees ☐
Other factors ☐

22- Select from the matrix below the most essential instruments through which you can mitigate risks on your enterprise and investments in Egypt over the next two years

Extremely essential =1
Very essential =2
essential = 3
Less essential=4
Not essential =5

Essential Instruments	Extremely Essential	Very Essential	Essential	Less Essential	No Essential
Entry into joint partnerships with other investors	☐ 1	☐ 2	☐3	☐ 4	☐ 5
Accurate feasibility studies for risks assessment	☐ 1	☒ 2	☐3	☐ 4	☐ 5
Gradual conservative investment strategy	☐ 1	☐ 2	☐3	☐ 4	☐5
Hiring Investments Portfolio management	☐ 1	☐ 2	☐3	☐ 4	☐5
Respecting investment laws and regulations	☐ 1	☐ 2	☐3	☐ 4	☐5
Provisions for extraordinary circumstances	☐ 1	☐ 2	☐3	☐ 4	☐5
Credit Default [162]Swap	☐ 1	☐ 2	☐3	☐ 4	☐5
Horizontal diversification in other markets and countries	☐ 1	☐ 2	☐3	☐ 4	☐5

[162] Credit Default Swap: It is a type of financial security instrument providing the buyer of the contract who owns the underlying credit with protection against default in return the seller of the contract assumes the credit risk that the buyer does not wish to shoulder in exchange for a periodic protection fee similar to insurance premium

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Appendix of Chapter 4:

Table 4.14: In-depth interview excerpts to detect quality of economic and political institutions on FDI flows in Egypt

Respondents	Sector	Insure	Invest. Obstacles in Egypt	Invest. incentives Egypt	Quality Political Institutions	Quality economic institutions	Invest. Tools to mitigate risk
Respondent 1	Agri. Business	Full	-Difficulty in obtaining license for a new project -Infrastructure Expanding ports capacity	-Custom authorities -Registry procedures for start-ups -Macroeconomic stability	-Political turmoil triggered currency crisis	- Currency crisis -Higher prices of food & fuel imports	-Partnerships -Conservative investments -Investment Consultancy services -Horizontal expansion
Respondent 2	Agri. Business	Full	- Supply chain infrastructure -Proper storage & transport. -Growth of retail sector. - Mechanization knowhow and R&D to increase productivity -Organization & consolidation of farmers	-Custom authorities -Stability of economic indicators FX	- Credibility & transparency government's decisions	- Holistic approach of financing to agribusiness Producers	-Conservative investments -Investment Consultancy services
Respondent 3	**Petro Chemicals**	Full	- Breach of contracts -Dropping exports due to government shifting to domestic supply	- Access to finance - Employees laws -custom duties -Macroeconomic stability	-Less exports & lower prices	-Government withholding payments to oil & gas producers	-Investment Consultancy services -Conservative investments
Respondent 4	**Chemicals**	Full	-Shortage of energy supplies	-Access to finance -Property rights & intellectual rights -Less start- up costs and procedures -Efficient institutions & custom authorities	- Government gaining credibility during 2015	- High Tax rates - Energy Shortage & higher costs -Exchange rate fluctuations	-Partnerships -Conservative investments -Investment Consultancy services -Credit Default swap

Respondent 5	**Pharma.**	Full	- Illegal and unfair competition between pharmas. -Protection of intellectual property rights	-Access to finance -Taxes -FX fluctuations -Custom authorities -Illegal competition -Price distortions & health insurance	- Violent acts disrupting production	-Taxes - Increasing interest rates on banking facilities - Access to finance -start-up costs & new licenses -Protection of intellectual property rights	- Partnerships -Conservative gradual investments -Horizontal diversification
Respondent 6	**Pharma.**	Full	- Low prices of pharma. Products -Registry license for new medicine takes up to 3 years -Protection of intellectual rights - Patents laws not enforced -Distortion in prices of medication -Counterfeit in active ingredients	- Raising medication prices by less than 10 EGP at a higher quality -Tighter supervision to enforce patent law -Insurance system re-designed	- 20% Fall in sales - Devaluation of Egyptian pound and higher FX -Shortage of some drugs - Shortage in raw materials -90% collateral to be paid in case of importing the active ingredients	- Impossible Access to finance - Patent enforcement -Stability of FX prices for imports of raw material -Price distortion due to failure of health care system	- Partnerships -Conservative gradual investments -Horizontal diversification
Respondent 7	**Auto.**	Partial	Contracts and dispute settlement laws - Increasing paperwork & startup costs for investors -Access to finance	- Efficiency of custom authorities & schedules - Rigidity of taxation laws, double taxation -Increase in the conversion to FX	- Breach of contracts –Less banking guarantees	-Macroeconomic stability is dispensable	- Risk insurance premium -Credit default swap -Gradual investments
Respondent 8	**Auto.**	Full	-lower custom duties due to PTA and agreements for European cars only -Inflation -Devaluation of pound & increasing FX	-Access to finance -Less taxes -More flexibility of custom authorities -Lower cost for start-ups	-Amendments of investment law -Decline in tourism affected their microbus sales -Regulatory laws for the industry	-Lower taxes -Increasing imports costs through customs -Higher prices of assembly inputs -Liquidity & increasing FX prices	- Partnerships -Conservative gradual investments -Investment consultancy services -Horizontal diversification

Respondent 9	**Heavy indus.**	Full	- Debt rescheduling & liabilities when buying out the factory -International arbitration & dispute settlement with world banks -	-Labor laws and their enforcement -Lower prices for factors of production -Energy sources -Maximize cement prices despite lower volumes -Switch to pet-coke	-Increase energy prices -Higher wages for employees -Increasing prices of production inputs	-Reduction of energy subsidies -Unstable supply of electricity -Double taxation problem -Macro economic stability -Market adjustments	-Conservative investment - Investment risk premium - Horizontal expansion
Respondent 10	**Heavy Duty Machinery**	Full	-Custom duties -Rigidity of investment law - Bureaucratic paperwork to start operations	-Transparency of information -More efficient custom authorities -lower start-up costs	- Credibility & government commitment to contracts	Macro economic stability -Protection of intellectual property rights -Taxation & custom system	- Partnerships -Conservative gradual investments -Insurance risk premium
Respondent 11	**Consumer goods**	Full	-Increasing of bureaucratic paper work - Rigidity of investment & commercial laws -Breach of contracts & dispute settlement	- Access to finance &banking facilities - Investors guarantees -Efficiency of custom authorities -Dispute settlements & contracts enforcement -Access to infrastructure	-Credibility & confidence returning to Egyptian market	-Currency fluctuation of FX against Egyptian pound -Inflation	- Opening in new markets & horizontal expansion
Respondent 12	**Electronics and energy**	Full	- Limited market opportunities due to illegal competition -rigidity of investment laws and - tax rates and their procedure	- Access to finance -Customs & taxes efficiency -Contracts enforcement	- Return of investors' confidence -Improvement of investment climate	- Presence & access to a strong infrastructure -Regulating energy prices	Partnerships -Conservative gradual investments -Insurance risk premium

Source: Excerpts and Transcription of 12-Indepth interviews was first performed manually

5.1 Final Remarks, Policy Implications and Future Extensions

There is no doubt that the MENA region has embarked on many challenges deterring its integration efforts from reaching acceptable levels when compared to other regions. Accordingly, the motivation behind this Doctoral Thesis emerged from the need to analyse three main objectives that are believed to have eminent policy implications on the acceleration of MENA region's trade flows and enhancement of its investment climate. i)consider how higher intra-regional trade flows among MENA countries could be attained; once we control for the impact of governance on trade regimes ii) Second objective is to shed light on the extent to which the Agadir Association agreement has fostered inter-regional sectoral trade flows between Agadir countries and E.U. As well to detect the variation in the composition and structure of final versus intermediate sector specific export flows for Agadir countries, once Pan-Euro Diagonal Rules of Origin are adopted iii) to analyse the expected fragility of MENA countries' institutions and how this affected FDI climate after the 2011 incidents, through an original qualitative dataset on FDIs in Egypt. The thesis includes two empirical articles addressing the estimation of intra-regional and inter-regional flows in MENA by means of a gravity equation. In addition, to an original qualitative dataset on FDI's companies gathered through a questionnaire, which was conducted after the 2011 turmoil in Egypt.

5.1 From a methodological point of view the main contributions are:

i. An adaption of the methodology capturing the impact of governance, regime changes through (Polity IV), and trade restrictiveness variables (Trade Freeness) on intra-regional trade flows; as previously motivated by the literature for other regions. Our estimations added a new dimension in the empirical literature for the MENA region by suggesting that mixed regimes and trade free countries, tend to increase MENA's intra-regional trade flow intensity.

ii. The interaction between both regime governance variables and trade freeness variables by considering their different thresholds to obtain more rigorous results on the impact of both variables on intra-regional trade intensity between MENA countries.

iii. The elaboration of a methodology combining between the gravity equation and impact evaluation of trade policy through Difference in Differences for Agadir Agreements sector specific flows with E.U. This was done through estimating inter-regional sectoral trade export flows between Agadir countries to the E.U. and in parallel modelling the adoption of Pan-Euro RoO

iv. The specification of a refined dataset on sectoral flows between Agadir_4 and E.U. to include Pan-Euro regime wide RoO, most favoured nation tariff (MFN) and breakdown of regional versus local value-added content.

v. The conduction of an original qualitative questionnaire gathering data on FDI in Egypt after the 2011 incidents. In addition to the conversion of qualitative codes into statistical data to be introduced into the logistic regression estimations.

vi. Reinvigorating the theoretical discussion on the permissiveness of regime wide RoO; given that they allow diagonal cumulation, when applied in the context of Association Agreements like Agadir countries. We propose that relaxation of the regional value content, allowed for Agadir countries to assimilate their inputs more efficiently from outside of RoO members instead of being bound only to European partners. This led to an upgrade in the composition, structure and value added of inter-regional export flows between Agadir_4 and E.U. This theoretical framework could be extended to test for Agadir inter-regional trade flows with other Pan-Euro diagonal RoO members in (RoW) like China or United States. As well it could include other aspects of product specific RoO to test their restrictiveness on the intensity of trade flows.

5.2 Regarding the main findings from the descriptive and econometric perspective, we can conclude that:

- The similarity between governance of both trading partners; given that both trading partners in MENA are democratic, does not necessarily guarantee higher intra-regional trade intensity between them. We assigned polity IV dummies to MENA countries based on three thresholds to re-classify countries into (Polity_demo, Polity_Mixed and Polity, Autoc). We found that, **Polity_Demo** variable has not shown any significance and reversed to a negative sign for intra-MENA at a factor of 0.89 [exp (-0.115)-1]. We obtained significant results on the Polity_mixed that indicated, that trading between mixed regimes of MENA countries would raise intra-MENA trade by 42 percent.

- Remarkable results were driven for the trade freeness variable within all its categories (Trade_free, Trade_mfree and Trade_unfree) in affecting MENA intra-regional flows; whether MENA countries are democratic or mixed regimes. More interesting was the interaction between both Polity_Mixed and Trade_Free variables together, which yielded a 104 percent increase in MENA's Intra_regional trade flows.

- The insignificance of border-effects across all estimations except for the 3rd scenario, when Trade-freeness variable was introduced, called our attention to how this border variable could be considered a "Pandora Box" to the region; especially in light of the on-going tensions and conflicts between its countries.

- The cluster analysis for inter-regional trade flows between Agadir 4 and E.U. identified an increase in the export flows of the following three following cluster of sectors: Cluster 1, classified as petrochemicals, Cluster 2: consumer non-durables and finally Cluster 3 under which falls all machinery spare parts and components.

- Across all estimations and robustness checks of descriptive and cluster analysis, PPML estimations and treatment with DID approach, results maintained consistency for petrochemicals (Other and industrial chemicals) and machinery spare parts.

- The adoption of Pan-Euro RoO, between Agadir_ and the E.U., induced growth of regional value-added content and allowed permissiveness and sourcing of inputs at more efficient costs. This created an incentive for Pan-Euro applicants to implement RoO and led to the emergence of intermediate flows for sectors like: Rubber products growing at 48 times more after the adoption of Pan-Euro RoO between Agadir_4 and E.U.

- After conducing, a principal component analysis to reduce the number of variables determining investment climate in Egypt, three Principal Components were obtained First component included all variables determining protection of investors property rights; especially for minority investor's rights under political instability and transition. The second component included fiscal and regulatory and paper work incentives given to investors. Finally, the third component covered all aspects of macroeconomic stability in Egypt such as inflation and FX currency regulation.

- Almost 70 percent of in-depth interview respondents in Egypt preferred a ˊWait and Hold' Approach or to maintain their ongoing investment status rather than expand their investments; especially after the 2011 revolts and during the transition.

- Foreign investors, when considering the investment climate in Egypt were mainly concerned with the time frame in which they can register their investments and how their taxation system will be dealt with and this in turn caused 73 percent of variability in the behavior between foreign and domestic FDIs'

5.3 Given that the Doctoral Thesis had achieved some contributions with respect to MENA region by giving a diagnostic approach over MENA Region's trade flows, it had the following limitation that we wish to proceed with resolving beyond to improve the results:

i) Our data set for Intra-regional trade flows for MENA countries could be extended to capture the impact of governance and regime changing variables on inter-regional trade flow; which could be quite complex and would require extensive work and econometric manoeuvring to obtain further breakdown of (RoW) into categories of trading partners with the MENA region. It could also suggest more sophisticated results that justify the robustness of the ones obtained for intra-MENA trade.

ii) The availability of data on the detailed breakdown of product specific RoO by chapters, chapter headings and sub-headings components of trade in products between Agadir_4 countries and E.U, to be estimated in the model. This would shed light on the restrictiveness of product RoO and would demonstrate, if a countervailing effect exist between Product restrictive RoO and Pan-Euro Regime wide RoO, thus washing out the effective impact of RoO.

5.4 Future Research Agenda

The Doctoral thesis could more flexibly accommodate to a fully-fledged future research agenda, targeting to increase trade intensity and value-added content and enhance the complexity of the Region's trade flows and in parallel improve FDI climate for MENA countries to include but not to be limited to the following lines of research:

- Detecting the impact of governance and similarity between MENA countries regimes and their trading partners for other region as (RoW) on trade flows intensities between MENA and world trading partners. This topic could be methodologically challenged by 'Gravity of Institution'

- Investigating the neighbourhood effect between MENA countries, in light of the on-going political tensions and conflicts the region is exposed to. This might leave the door open in front of all the possibilities regarding how Border variable will respond, when introduced to MENA region estimations.

- The in-depth analysis of product specific and regime wide RoO of MENA countries and their impact on sector specific imports of MENA countries, adapted in the context of the gravity equation. The modelling exercise could be repeated by using Difference in Difference approach and Propensity Score matching approaches

- Looking at intra-FDI flows and multinational flows between MENA countries, which by all means will, be considered the new trend of trading between countries.

- It is inevitable the MENA countries services trade represented 50 percent of their respective countries GDPs during 2015. Accordingly, services trade flows differentiated by sectors would be critical to boost the Region's trade intensity at this point. This will be challenged through a gravity equation of sector specific services flows across MENA countries.

5.1 Observaciones finales, implicaciones políticas y futuras ampliaciones

No hay duda de que la región MENA se enfrenta a muchos desafíos que impiden sus esfuerzos de integración por alcanzar niveles aceptables en comparación con otras regiones. En consecuencia, la motivación de esta tesis doctoral surgió de la necesidad de analizar tres objetivos principales que se cree que tienen implicaciones políticas eminentes en la aceleración de los flujos de comercio de la región de MENA y la mejora de su clima de inversión: I) considerar la forma en que se podrían alcanzar las mayores corrientes comerciales Intra-regionales entre los países de la región MENA; Una vez que controlemos el impacto de la gobernanza sobre los regímenes comerciales. II) El segundo objetivo es arrojar luz sobre la medida en que el Acuerdo de Asociación de Agadir ha fomentado los flujos sectoriales interregionales entre los países de Agadir y la UE. Así como para detectar la variación en la composición y estructura de los flujos de exportación específicos del sector final hacia los países de Agadir, una vez adoptadas las Reglas de Origen Diagonal Pan-Euro. III) analizar la fragilidad esperada de las instituciones de los países de MENA y saber cómo afectó al clima del IED después de los incidentes de 2011, a través de un conjunto de datos cualitativos originales sobre las IED en Egipto. La tesis incluye dos artículos empíricos que abordan la estimación de los flujos intrarregionales e interregionales en la región de MENA mediante una ecuación de gravedad. Además, un conjunto de datos cualitativos originales sobre las empresas de la IED se reunió a través de un cuestionario, que se llevó a cabo después de la turbulencia de 2011 en Egipto.

5.1 Desde el punto de vista metodológico, las principales contribuciones son:

i. Una adaptación de la metodología que capta el impacto de gobernanza, los cambios de régimen a través de (Polity IV) y los variables de restricción comercial (Trade Freeness) sobre los flujos de comercio intrarregionales; como previamente ha sido motivado por la literatura para otras regiones. Nuestras estimaciones añadieron una nueva dimensión en la literatura empírica para la región de MENA al sugerir que los regímenes mixtos y los países de libre comercio se inclinan a incrementar el comercio intra-regional de MENA.

ii. La interacción entre los variables de gobernabilidad del régimen y los variables de la libertad comercial, teniendo en cuenta sus diferentes umbrales, con el fin de obtener resultados más rigurosos sobre el impacto de ambos variables sobre la intensidad comercial intra-regional entre los países de MENA.

iii. La elaboración de una metodología que combine la ecuación de gravedad y la evaluación del impacto de la política comercial a través de la Diferencia de Diferencias para los Acuerdos de Agadir. Esto se hizo a través de la estimación de los flujos interregionales de exportaciones comerciales sectoriales entre los países de Agadir hacia la UE, y en paralelo modelar la adopción del Pan- Euro RoO.

iv. La especificación de un conjunto de datos refinado sobre flujos sectoriales entre Agadir_4 y U.E para incluir el RoO amplio del Régimen Pan-Euro, la tarifa de nación más favorecida (NMF) y el desglose del contenido de valor añadido regional versus local.

v. La realización de un cuestionario cualitativo original que recogiera datos sobre la IED en Egipto después de los incidentes de 2011, además de la conversión de los códigos cualitativos en datos estadísticos que se introducirán en las estimaciones de regresión logística.

vi. Revitalizar la discusión teórica sobre la permisividad del RoO de régimen amplio; dado que permiten la acumulación diagonal, cuando se aplican en el marco de acuerdos de asociación como los de Agadir. Supongamos que la relajación del contenido de valor regional permitió a los países de Agadir asimilar sus aportaciones de forma más eficiente de fuera de los miembros de la RoO en lugar de estar vinculados sólo a los socios europeos. Esto llevó a una mejora en la composición, estructura y al valor añadido de los flujos de exportación interregionales entre Agadir4 y UE. Este marco teórico podría ampliarse para probar los flujos comerciales interregionales de Agadir con otros miembros de Pan-Euro diagonal RoO (RoW) como China o Estados Unidos.

5.2 En cuanto a los principales resultados de la perspectiva descriptiva y econométrica, podemos concluir que:

- La similitud entre la gobernanza de ambos socios comerciales; dado que ambos socios comerciales en la región MENA son democráticos, no garantiza necesariamente la mayor intensidad comercial intrarregional entre ellos. Hemos asignado a los dummies de la polity IV a los países MENA basados en tres umbrales para volver a clasificar los países en (Polity_demo, Polity_Mixed y Polity, Autoc). Se encontró que, Polity_Demo variable no ha mostrado ninguna significación y se ha invertido a un signo negativo para intra-MENA en un factor de 0.89 [exp (-0.115) -1]. Obtuvimos resultados significativos en el Polity_mixed que indicaba que el comercio entre regímenes mixtos de los países MENA aumentaría el comercio intra-MENA en un 42 por ciento.

- Se registraron resultados notables en la variación de la libertad comercial en todas sus categorías (Trade_free, Trade_mfree y Trade_unfree) al afectar los flujos intrarregionales de MENA, si los países de MENA son regímenes democráticos o mixtos. Más interesante fue la interacción entre los variables de Polity_Mixed y Trade_Free, lo que produjo un aumento del 104% en los flujos de comercio intra-regional de MENA.

- La insignificancia de los efectos fronterizos en todas las estimaciones, excepto en el tercer escenario cuando se introdujo el variable Trade-Freeness, llamó nuestra atención a cómo esta variable de frontera podría ser una "Caja de Pandora" para la región; especialmente a la luz de las tensiones y conflictos en curso entre sus fronteras.

- El análisis por grupos de los flujos comerciales interregionales entre Agadir 4 y U.E identificó un aumento en los flujos de exportación de los tres siguientes grupos de sectores: Clúster 1, clasificado como petroquímica, Clúster 2: consumidor no duradero y finalmente Clúster 3 bajo el cual caen todas las piezas y componentes de maquinaria.

- A través de todas las estimaciones y comprobaciones de robustez del análisis descriptivo y de conglomerados, las estimaciones de PPML y el tratamiento con enfoque DID, los resultados mantuvieron la consistencia para petroquímicos (Otros productos químicos industriales) y repuestos de maquinaria.

- La adopción de Pan-Euro RoO, entre Agadir y la UE, indujo el crecimiento del contenido regional de valor agregado y permitió el permiso y la obtención de insumos a costos más eficientes. Esto creó un incentivo para que los solicitantes Pan-Euro implementaran RoO y condujeron a la aparición de flujos intermedios para sectores como: productos de caucho y goma crecer 48 veces más después de la adopción de Pan-Euro RoO entre Agadir_4 y UE .

- Después de realizar un análisis de componentes principales para reducir el número de variables que determinan el clima de inversión en Egipto, se obtuvieron tres componentes principales, el primer componente incluyó todas las variables que determinan la protección de los derechos de propiedad de los inversores; especialmente para los derechos de los inversionistas minoritarios bajo inestabilidades políticas y transición. El segundo componente incluía incentivos fiscales y reglamentarios y papel para los inversores. Por último, el tercer componente abarcó todos los aspectos de la estabilidad macroeconómica en Egipto, como la inflación y la regulación de cambio de divisas.

- Casi el 70 por ciento de los encuestados entrevistados en profundidad en Egipto prefirieron un "enfoque de espera y vigilancia" o mantener su estado actual de inversión en lugar de ampliar sus inversiones; especialmente después de las revueltas de 2011 y durante la transición.

- Los inversores extranjeros, al considerar el clima de inversión en Egipto, se ocuparon principalmente del plazo en el que puedan registrar sus inversiones y de cómo se tratará su sistema fiscal, lo que a su vez provocó un 73 por ciento de la variabilidad en el comportamiento.

5.3 La tesis doctoral había conseguido algunas contribuciones con respecto a la región de MENA que daba un diagnóstico sobre los flujos comerciales de la Región MENA, pero tenía las siguientes limitaciones que deseamos seguir más adelante para mejorar los resultados:

i) Se podría extender nuestro conjunto de datos sobre los flujos comerciales intra-regionales para los países de la región MENA para captar el impacto de las variables de gobernanza y de cambio de régimen en los flujos comerciales interregionales; que podría ser bastante complejo y requeriría un trabajo extensivo y maniobras econométricas para obtener una mayor desagregación de (RoW) en categorías de socios comerciales con la región MENA. También podría sugerir resultados más sofisticados que justifiquen la robustez de los obtenidos para el comercio intra-MENA.

ii) La disponibilidad de datos sobre el desglose detallado de los RoO específicos de los productos por capítulos, títulos de capítulos y subtítulos, componentes del comercio de productos entre los países de Agadir4 y UE , que se estima en el modelo. Esto arrojaría luz sobre el carácter restrictivo de las RoO de productos y demostraría, si existe un efecto compensatorio entre el RoO restrictivo del producto y el RoO Pan-Euro Régime, eliminando así el buen impacto de las RoO.

5.4 Programa de Investigación Futuro

La tesis doctoral podría acomodarse de manera más flexible a una agenda de investigación futura, dirigida a aumentar la intensidad comercial y el contenido de valor añadido y aumentar la complejidad de los flujos comerciales de la región, y en paralelo mejorar el clima para las IED en los países MENA, sin limitarse a las siguientes líneas de investigación:

- Detectar el impacto de la gobernanza y la similitud entre los regímenes de los países de la región MENA y sus socios comerciales en otras regiones como, (RoW) sobre las intensidades de los flujos comerciales entre MENA y otros. Este tema podría ser cuestionado metodológicamente por "Gravedad de la Institución".

- Investigar el efecto de vecindad entre los países de la región MENA, a la luz de las tensiones políticas y conflictos en curso en la región. Podría abrir todas las posibilidades sobre cómo responderá la variable Border, cuando se introduzca en las estimaciones de la región MENA.

- El análisis en profundidad de los RoO específicos de cada producto y del régimen de los países MENA y su impacto sobre las importaciones sectoriales específicas de los países MENA, adaptado en el contexto de la ecuación de gravedad. El ejercicio **d e** modelado podría repetirse utilizando el enfoque Difference in Difference y Propensity Score .

- Mirando los flujos intra-IED y los flujos multinacionales entre los países MENA, que por supuesto serán considerados como la nueva tendencia de comercio entre países.

- Es inevitable que el comercio de servicios de los países de MENA represente el 50 por ciento del PIB de sus respectivos países durante 2015. Por consiguiente, los flujos comerciales de servicios diferenciados por sectores serían críticos para aumentar la intensidad comercial de la región en este punto. Esto será cuestionado a través de una ecuación de gravedad de los flujos de servicios específicos del sector en los países de la región MENA.