

**F1**  
**Sultan Qaboos University**  
**Research Department**  
**Research Proposal**



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<b>EXPECTED PROJECT DURATION</b>		
36 months		
<b>GRANT REQUESTED (RO)</b>		
<b>Total: 71,936</b>		
Year 1: 22,312	Year 2: 29,312	Year 3: 20,312
<b>SHORT TITLE</b>		
The Impact of Free Trade Agreements on the Productivity and Exporting Capability of Omani Manufacturing Companies		
<b>KEY WORDS</b>		
Free trade agreements; Oman-US FTA; GCC-EU FTA; manufacturing; productivity; export; Oman.		
<b>THEMES</b> ( <i>Environmental and Biological, Energy and Non-renewable Resources, Life and Health Sciences, Humanities and Social Sciences, Information and Communication Systems, Fundamental, Materials, Educational, Industry-related</i> )		
Humanities and Social Sciences; Industry-related		
<b>EXPECTED BENEFICIARIES</b>		

Government of Oman  
Ministry of Trade and Industry, Oman  
Oman Chamber of Trade and Industry, Oman  
Omani manufacturing firms, Oman  
Manufacturing companies operating in the GCC  
Gulf Cooperation Council, Saudi Arabia  
EU Commissions, Belgium  
US Government

## SUMMARY

This empirical study provides an impact assessment of Oman's free trade agreements (FTAs) on the productivity and exporting capability of its local manufacturing firms. It underlines the significance of FTAs in the development of the country's industrial sector and the extent to which trade flows and spillover mechanisms impact the performance of local firms. It critically evaluates the five FTAs that Oman has concluded with major trading partners to determine the extent to which the country has benefitted from these agreements. A comparative analysis is provided through a critical examination of both the bilateral approach to FTAs represented in the Oman-US FTA signed in 2006 and entered into force in 2009 and the regional approach of FTAs that the GCC concluded with Singapore, GAFTA and EFTA.

Building upon such examination, this timely and groundbreaking study conducts an impact assessment of the long awaited GCC-EU FTA and the likely impact of such an agreement on Omani industrial firms. It argues that this agreement could enable Oman and other GCC countries to have a more diversified economic structure and enhanced exporting capabilities through stimulation of competition and improved access to financial and technical assistance across all economic sectors, particularly the manufacturing sector. The elimination of tariff and non-tariff barriers reduce the cost of doing business due to tariff savings, cheaper imported inputs in the production process in terms of raw and semi industrial goods, transparency in procurement procedures, and security of supply of high-tech goods and services through preferential treatment offered by the agreement. It also stresses the importance of inward investment associated with technology transfer, knowledge acquisition and other spillover effects into domestic firms.

Empirically, the study employs rigorous quantitative and qualitative methodological techniques to collect and analyze primary and secondary data, including survey questionnaires, semi-structured interviews, and simulation with GTAP, a widely used computable general equilibrium software. Data analysis is limited to the manufacturing sector, which accounts for almost 10 per cent of GDP and has the potential to expand and drive the process of economic diversification, employment, innovation and technological development.

While filling a significant gap in literature, the findings of this study will provide a research-based evidence to policy makers of the cost-benefit of FTAs on domestic market and whether the government should call for the resumption of negotiations with the EU and cease the opportunity to conclude a bilateral FTA with the UK in post-Brexit. The study will also contribute to capacity building by employing and training young researchers, as well as fostering collaboration between the Humanities Research Center (HRC) and other colleges and departments in SQU and with, policy makers, executives and industry experts.

**Does the proposal need to be cleared by the University Ethics-In-Research Committee?**

*(If yes, tick the correct item)*

- A. The Animal Research Ethics Board
- B. The Medical / Clinical Research Ethics Board
- C. The Social Research Ethics Board

## OUTLINE OF PROPOSED RESEARCH

Proposed research outline must include at least the following sub-sections:

- **INTRODUCTION**

The proposed study conducts a thorough examination of the impact of free trade agreements (FTAs) on the development of the Industrial sector in Oman. Specifically, it will focus on how the dynamics of trade agreements enhance the productivity and exporting capability of Omani companies. The rationale of the study is that Oman has concluded five FTAs with the USA, GCC common market, Greater Arab Free Trade Area (GFTA), European Free Trade Area (comprises Iceland, Liechtenstein Norway and Switzerland) and Singapore, but no detailed examination has yet been conducted to evaluate the impact of these agreements on the performance of our companies. It will provide policy makers with an evidence-based research to conclude a fair deal for our economy when negotiating potential FTAs with the EU and the UK in post-Brexit.

This empirical study will be divided into two main sections. The first section identifies the dynamic trade variables embedded in FTAs that have direct and indirect effects on manufacturing such as elimination of tariffs and non-tariff barriers, customs procedures, free mobility of factors of production and regulations concerning ownership, intellectual property, labor rights and environmental concerns. The second section assesses the impact of the above variables on the surveyed manufacturing firms. Analysis will focus on evaluating total factor productivity by measuring the efficiency of labor and capital input in production in relation to their output. It also measures the enhancement in exporting capability by assessing the impact of key variables such as technology transfer, know-how, product specification, customs procedures and market access on the capacity of the firms to market their products in international markets.

Methodologically, this study employs a variety of research methods, including qualitative and quantitative techniques such as survey questionnaires and semi-structured interviews to collect primary and secondary data. The Global Trade Analysis Project (GTAP), a Computable General Equilibrium (CGE) software will be used to analyze trade data and estimate the potential impact of the FTA on the flow of trade and investment as well as the FTA economy-wide, sectoral and welfare effects of trading partners. Analysis will be limited to manufacturing firms, where we will be able to systematically measure productivity and exporting capability.

- **LITERATURE REVIEW**

This study will survey the literature on free trade areas to determine how bilateral and regional FTAs, particularly those conducted by the USA and the EU with the various countries and trade blocs impacted the development of their manufacturing sectors, and how GCC countries can learn from these past experiences (Zorob, 2013; Miller & Mishrif, 2005; Backer, 2005; Boughanmi et al, 2016; Boughanmi, 2008). While providing a brief assessment of GCC-EU trade relations since the signing of the Cooperation Agreement in 1988, analysis will primarily focus on how a potential GCC-EU FTA can improve the business environment through policy adjustment, more specifically the legal and regulatory frameworks, enforcement mechanisms, elimination of tariffs and non-tariff barriers, non-discriminatory practices, intellectual property rights protection, and competition law. The study will also show how GCC countries can draw on key policy

adjustments to further liberalize their trade and investment regimes, build human and institutional capacities and improve access to a vast, well-developed and highly competitive market in the EU.

In principle, it is expected that the potential FTA may enable Oman and other GCC countries to have a more diversified economic structure and enhanced exporting capability through stimulation of competition and improved access to financial and technical assistance across all economic sectors, particularly the manufacturing sector. Although GCC countries currently impose zero tariff on industrial inputs imported from outside GCC, the elimination of non-tariff barriers will reduce the cost of doing business for GCC companies due to tariff savings, cheaper imported inputs in the production process in terms of raw and semi industrial goods, transparency in procurement procedures, security of supply of high tech goods and services through preferential treatment offered by the agreement.

The study will also examine the possible correlation between the conclusion of the potential GCC-EU free trade agreement and the flow of inward investment into the GCC markets, more specifically the manufacturing sector (Ayadi & Gadi, 2013). Particular attention will be paid to the quality of inward investment, especially from the EU, the absorptive capacities of the GCC domestic firms, and the extent to which spillover effects from inward investment into the domestic firms could enhance the competitiveness of the manufacturing sector, making it more attractive to efficiency-seeking enterprises (Cohen, 2007). Technology transfer that is often associated with inward investment could have a positive effect on domestic firms through the acquisition of knowledge and technology (Dunning, 1981), particularly in sectors where the GCC has comparative advantages such as petrochemicals and oil-related industries.

As technology transfer will be the primary focus here, analysis will focus on how and to what extent trade can facilitate technology transfer into the GCC markets, and the channels through which domestic manufacturing firms could utilize such transfer and easy access to technology to enhance their productivity and competitiveness. It will be shown that enhancing competitiveness means increasing productivity by utilizing superior technologies and upgrading of human capital. Although inward investment is often identified as one of the means of stimulating competitiveness, trade liberation through free trade agreements is an important step towards attracting more inward investment to the host economies. This means that improving competitiveness requires national governments to create the right environment in which companies can operate efficiently and be more productive. Thus, competitiveness is initiated by government efforts but sustained by enterprises. Such interplay between free trade, inward investment, government, company, productivity and competitiveness is what makes this impact assessment so valuable in the GCC context.

Having focused on manufacturing, this study will underscore the comparative advantages of the GCC in a few industries such as the petrochemicals and aluminum industry, which are both energy intensive sectors. Investing in the petrochemical industry depends highly on economies of scale, proven technologies, and the availability of raw materials in close proximity; hence the potential EU-GCC free trade agreement could attract more EU investment into this industry. In other words, the potential free trade agreement could lead to exploitation of complementarities such as EU's technology ownership advantage and GCC's location advantage for the petrochemical industry. It will be also shown that the most likely firms to benefit the development of GCC are export oriented EU firms with a wide product range, adopt high levels of technology and utilize significant local contents (Young et al, 1994); this applies to a number of industries, including petrochemicals and aluminum, in the GCC. Also, non-technological ownership advantages of the inward investment firms may increase local productivity through transferring management skills



and best practices, which are expected to be diffused by domestic firms' business dealings with foreign firms creating the forward and backward linkages (Driffield, 2001). The interaction between foreign and local firms should result in creating economies of scales and finding synergies, especially for the local firms to improve their productivity.

- **OBJECTIVES**

The key objective of this study is to determine how and to what extent can Oman benefit from FTAs and the likely impact of such agreements on the productivity and exporting capabilities of Omani manufacturing companies.

To attain this objective, the study will provide a comprehensive evaluation of the existing FTAs, more specifically the Oman-US FTA and those concluded at regional level with the GCC and Singapore, while conducting an impact assessment of the potential EU-GCC FTA on local manufacturing firms. The study will examine the effects of such agreements on improving the business environment through policy change or policy adjustment, increasing the productivity of local firms, achieving economic diversification, and enhancing the exporting capabilities of GCC manufacturing firms.

The second objective is to examine whether FTAs have the tools and mechanisms to boost Omani firms through linkages and interactions with their foreign counterparts, upgrade of their existing production techniques, improvement in their technological and human capabilities, and operate in newly created industries based on the country location comparative advantages. Meanwhile, the study also aims to determine the appropriate levels of capacity building that our companies must acquire to be more productive and competitive nationally and internationally.

The third objective is to explore whether FTAs can bring about radical shift in Oman trade and investment regime from concentrating on investing and developing resource-rich industries such as oil and gas to promoting and supporting efficiency-seeking investment in innovative, high-tech and export-oriented industries. This policy change could optimize the benefits of FTAs and accelerate the pace of economic diversification, most notably in the industrial sphere. Such investigation is needed as existing literature argues that investment in resource-rich areas, such as oil and gas exploration, do not only call into question the benefits of this type of investment in terms of adding value to the economy but they also conflict with their ambitious diversification strategies (Gugler, 2007; Driffield, 2001).

The fourth objective is to examine the linkage between FTAs and inward investment and the extent to which foreign firms intend directly or indirectly to enhance the productivity of local partners and suppliers through training and technical assistance. Previous studies argue that multinational companies tend to train their suppliers' employees to elevate the supplied services and products to the desirable level of quality and standards (Lall, 1978). It could be also argued that EU companies are expected to demand high quality of products and services, which will force local suppliers to partner with foreign companies in order to upgrade their operations and in turn become more productive (Meyer, 2000).

The fifth objective is to develop capacity building at SQU, by engaging undergraduate and postgraduate students and young researchers in the research project. The research project will serve as a forum within which young research will interact and learn from established researchers as well as learning various methodological techniques and attending methodology training sessions. This project will also provide an opportunity for exchanges of knowledge and experience between the research team and key policy makers, industry experts, public and private executives, and other stakeholders concerned with FTAs and Oman industrial

development. The project will also sponsor two students to study for Master's in Business Administration (MBA) in the College of Economics and Political Science, SQU.

- **SIGNIFICANCE**

The significance of this study lies in its innovative approach to assess the impact of an FTA on a specific sector or industry in member states. First, it goes beyond the classical approach of international trade theories to examine whether FTAs can enhance the productivity, competitiveness and exporting capabilities of the trading partners' local firms. The assessment will be carried out through two case studies in Oman, by looking into the bilateral Oman-US FTA and the potential EU-GCC FTA, in which Oman will be a member state. In both cases, the study assesses the impact of FTAs on trade flows, inward investment, technology transfer, and human and institutional capacity building.

Also, the findings of the study will determine the extent to which FTAs can open new economic sectors such as manufacturing and services to foreign investment. Opening new industries for foreign firms could shift traditional business activities from resource-seeking to efficiency-seeking investment.

Second, it provides evidence-based research to enable policymakers to make the necessary policy adjustments needed to maximize gains and minimize adverse effects from trade agreements. This research is also expected to inform key stakeholders in the public and private sectors of the potential business opportunities and gains, as well as the expected negative externalities on the manufacturing industries as a result of concluding trade agreements.

Third, the study provides a timely, clear and accurate understanding of the impact of FTAs on domestic industries. The execution of such examination is important before the resumption of negotiations of GCC-EU FTA, which were suspended in 2010 due to different political and economic views. New insights of this examination will be valuable for Omani and GCC negotiators in future discussions with their EU counterparts. Such new insights could provide GCC policy makers with the research-based evidence on how the potential agreement is likely to impact their economies. This will enable them not only to dedicate their efforts to reaching a fair and just agreement and determine in advance what they can and cannot offer to their EU counterparts but also exploiting the potential gains from this agreement by identifying the necessary policy adjustment to avoid any negative effects that may be caused to particular sectors or firms.

Fourth, this study will fill a significant gap in literature in the subject. A huge volume of literature has been produced to assess the impacts of FTAs in developed and emerging markets, but there is hardly any serious research made in the context of Oman and GCC. It will be the first of its kind to produce an impact assessment of the long-awaited FTA between the GCC and the EU, therefore its contribution to knowledge and policy making will be appreciated within the academic and political domains.

- **METHODOLOGY**

## 1. Theoretical and Hypothetical Framework

According to Mikic and Gilbert (2007), trade indicators are indices or ratios used to describe and assess trade dynamics of economies. For this study, indicators will be selected to explain the *interdependence* and the *relative position* among potential FTA member countries. Indicators of interdependence include (i) intraregional trade share, (ii) intraregional trade intensity and (iii) regional trade introversion. Indicators for relative positions include (iv) revealed comparative advantage, (v) regional orientation, (vi) trade complementarity and (vii) export similarity.

In general, these indicators are easily constructed with accessible data from national statistics offices and multilateral economic institutions. Trade indicators are especially useful as an initial assessment of the general position of a set of countries at a given time. They are simple, straightforward and intuitive. However, by definition, trade indicators do not point to causalities and cannot explain trade dynamics.

Interdependence indicators are important to indicate the extent to which potential member countries of a proposed FTA trade with each other. For each indicator, a high value reveals that potential FTA members have lower trade costs with each other in comparison to non-FTA countries. Trade costs include transport costs (freight and time), policy barriers (tariffs and non-tariff barriers), information costs, contract enforcement costs, foreign exchange costs, legal and regulatory costs, and local distribution costs (wholesale and retail). Following traditional trade theory, the intuition here is that high values and low trade costs indicate potential trade creation and low values and high trade costs indicate potential trade diversion.

Intraregional trade share is the ratio of trade between member countries of a proposed FTA over the total trade of all these countries.

$$\text{Intraregional trade share}_i = \frac{T_{ii}}{T_i}$$

Where

$T_{ii}$ : exports of region  $i$  to region  $i$  plus imports of region  $i$  from region  $i$

$T_i$ : total exports of region  $i$  to the world plus imports of region  $i$  from the world

Intraregional trade intensity is the intraregional trade share over the share of the FTA members' total trade in world trade. Results express the bias of the FTA members to trade within the "region" or with non-members. When the indicator is higher than 1, the FTA members have a bias toward trading among themselves; when it is lower than 1, the bias is the opposite.

The formula for the intraregional trade intensity is:

$$\text{Intraregional trade intensity}_i = \frac{T_{ij}/T_i}{T_i/T_w}$$

Where

$T_{ij}$ : exports of region  $i$  to region  $j$  plus imports of region  $i$  from region  $j$

$T_i$ : total exports of region  $i$  to the world plus imports of region  $i$  from the world

$T_W$  : total world exports plus total world imports, which can be twice world imports or twice world exports.

In order to tackle some limitations of the intraregional trade share and the intraregional trade intensity, Iapadre (2006) developed the regional trade introversion index. The aim is to measure the relative intensity of intra-FTA trading. The difference here is that trade intensity is a function of the members' share of outsiders' total trade and not of total trade. The range is -1 to 1, with positive numbers expressing an intraregional bias and negative numbers an extra-regional bias.

The formula for the regional trade introversion index is;

$$\text{Regional introverse trade index}_i = \frac{HI_i - HE_i}{HI_i + HE_i}$$

Where

$$HI_i = (T_{ii}/T_i) / (T_{oi}/T_o) \text{ and}$$

$$HE_i = [1 - T_{ii}/T_i] / [1 - T_{oi}/T_o]$$

$T_{ij}$ : exports of region  $i$  to region  $j$  plus imports of region  $i$  from region  $j$

$T_i$ : total exports of region  $i$  to the world plus imports of region  $i$  from the world

$T_{oi}$  : exports of region  $i$  to outsiders plus importers of region  $i$  from outsiders

$T_o$  : total exporters of outsiders plus total importers from outsiders

In the 1960s, Balassa (1965) developed the revealed comparative advantage (RCA) index, in order to help to identify a country's comparative advantage. The RCA index is the ratio of a country's share of the commodity in the country's total exports to the share of world exports of the commodity in total world exports. A country has a revealed comparative advantage when the value of the index is more than 1 and a revealed comparative disadvantage when it is less than 1. Larger differences between countries' indices tend to indicate more benefits within a potential FTA.

The formula of the RCA index is:

$$RCA_{cg} = \frac{X_{cg}/X_c}{X_{wg}/X_w}$$

Where

$X_{cg}$  : exports of commodity  $g$  by country  $c$

$X_c$  : total exports of country  $c$

$X_{wg}$  : world exports of commodity  $g$

$X_w$  : total world exports

The formula for the RCA index is:

$$\text{Revealed Comparative Advantage}_{cg} = \frac{(X_{cg}/X_c)}{(X_{wg}/X_w)}$$

where

- $X_{cg}$  = exports of good  $g$  by country  $c$
- $X_c$  = total exports of country  $c$
- $X_{wg}$  = world exports of good  $g$
- $X_w$  = total world exports

The regional orientation index reveals whether a country has a regional bias in its exports. There is a regional bias when the index is higher than 1. When combined with the RCA index, the regional orientation index may help to indicate trade diversion after an FTA. Trade diversion may be caused when the RCA index of a country is less than 1 and its regional orientation index is more than 1.

The formula of regional orientation index is:

$$\text{regional orientation}_{cgr} = \frac{X_{cgr}/X_{cr}}{X_{cg-r}/X_{c-r}}$$

Where

$X_{cgr}$  : exports of good  $g$  by country  $c$  to region  $r$

$X_{cr}$  : total exports of country  $c$  to region  $r$

$X_{cg-r}$  : exports of good  $g$  by country  $c$  to countries outside the region

$X_{c-r}$  : total exports of country  $c$  to countries outside the region

To measure the extent to which the export pattern of one country complements the import pattern of the FTA partner countries, the complementarity index is used. The index ranges between 0 and 1, with higher numbers indicating more complementarity.

The formula of the complementarity index is

$$1 - \left\{ \frac{\sum_g \text{abs} \left[ (M_{rg}/M_r) - (X_{cg}/X_c) \right]}{2} \right\}$$

Where

$M_{rg}$  : imports of good  $g$  by region  $r$

$M_r$  : total imports of region  $r$

$X_{cg}$  : exports of good  $g$  by country  $c$

$X_c$  : total exports by country  $c$

A similar metric indicates export similarity.

The formula for the export similarity index

$$\text{complementarity index}_i = \sum_g \min \left[ \left( \frac{X_{rg}}{X_r} \right) \left( \frac{X_{cg}}{X_c} \right) \right]$$

Where

$X_{rg}$  : exports of good g by region r

$X_r$  : total exports of region r

$X_{cg}$  : exports of good g by country c

$X_c$  : total exports of country c

#### *Partial Equilibrium and the SMART Model*

Partial equilibrium models are based on standard microeconomic theory and focus on only one market. The benefits of partial equilibrium models are that they require less data than general equilibrium models and assessments can be made at very disaggregated levels.

The single market partial equilibrium simulation SMART model is used to assess the impact of FTAs on trade, tariff revenue and welfare. The model and the simulation tools are part of the World Integrated Trade Solutions (WITS) database developed by both the World Bank and the United Nations Conference on Trade and Development (UNCTAD).

The SMART model focuses on the effects of policy shocks on imports in markets for particular commodities. The model adjusts the demand side to the Armington assumption (imports from one country are imperfect substitutes for imports from other countries) and to the assumption that consumers optimize their spending by commodity and by national variety. In the model, the FTA will affect both the price index of the commodity and the relative prices of the different national varieties. The SMART model balances import substitutions and make sure that it reallocates market shares among foreign partners instead of changing the overall import quantity. The imports will increase only in the countries benefited from the FTAs.

Mostly, data to run SMART models can be extracted from WITS. Data requirements for FTA simulations include: (i) the import value from each foreign partner; (ii) the tariff faced by each foreign partner; (iii) the import demand elasticity for the commodity; (iv) the export supply elasticity for the commodity; and (v) the substitution elasticity between varieties of the commodity. These parameters are usually taken from the literature and inputted by the users of the model to fit the particular situations of the members countries.

#### *Computable General Equilibrium and the GTAP Model*

In order to capture inter-industry effects and feedback effects of FTAs, a computable general equilibrium models (CGE) are necessary. A typical CGE model relies on national input-output tables that are organized into a social accounting matrix.

Indirect effect of trade policy changes in other markets (inter-industry effects) and feedback effects (the effects due to a trade policy change in a particular market that spill over to related markets and return to affect the original market) are accounted for and considered in a general equilibrium model. The CGE for this study is going to be conducted using the “Global Trade Analysis Project” (GTAP) Model, which is a multiregional, multisector, computable general

equilibrium model, with perfect competition and constant returns to scale. The GTAP data base version 8.1 covers 134 regions and 57 commodities and unlike the previous versions, the data base includes the GCC region disaggregated by country. The structure of the standard GTAP model is fully documented in Hertel et al. (2007) and has been subject to various improvements to include dynamic effects as well as environmental and energy trade issues

## **2. Research Methods and Instruments**

This study will adopt a multidisciplinary approach to enable the research team to use a combination of theoretical underpinnings from various disciplines such as international business, international trade and regional integration theories. On the one hand, the theory of regional trade arrangements (RTAs) will be used to explain how FTAs affect the trade ties between Oman and its trading partners and consequently affects the dynamics of their internal markets. Free trade theory will be used to explain how trade liberalisation due to the formation of a FTA affects the business environment through policy adjustment and changes in the legal and regulatory frameworks in Oman as a result of the agreement. International business theory will help in examining how the dynamic changes in the business environment affect the strategies and operations of the companies, as well as identifying the channels and mechanisms through which spillover effects from trade and investment enhance the productivity, competitiveness and exporting capabilities of domestic firms.

The rationale of this multidisciplinary approach is manifold. First, the key variables (free trade, inward investment, technology transfer) of this study are intertwined. Second, the levels of interactions between the main actors and stakeholders (Oman, the US, the EU, GCC, national governments, the public and private sectors, local and foreign companies) are huge and inseparable in such a broad issue as an FTA. Third, there is no single paradigm that could provide a comprehensive understanding and in-depth analysis of the subject under consideration. This approach will enable us to overcome lack of existing literature on the subject from the perspective of Oman; shortage of accurate, timely and reliable statistics; and difficulties associated with studies of impact assessment of potential FTAs on local manufacturing firms. We will also use a mix of methods and research instruments, including quantitative and qualitative techniques and case studies focusing on the manufacturing firms in order to allow for comprehensive analysis of the subject under examination.

As for the evaluation criteria, this study will depend largely on the set of indicators developed and used in the Global Competitiveness Index to measure and assess the levels of improvement in the productivity and competitiveness of firms and subsequently those of their national economies.

The research seeks to achieve the best quality data collection and analysis based on solid approaches and through the use of multiple instruments drawn from various disciplines. Using one instrument alone would not fulfil the purpose of this study. Therefore, three instruments will be employed, to give more confidence in the quality of the conclusions obtained as compared to using just one method.

*Case Study: The Manufacturing Sector*



The analysis will be conducted by means of a case study, whereby the effect of the potential FTA is examined mainly on the productivity and exporting capabilities of local manufacturing firms in Oman. The study on productivity will not look at the impact of the potential agreement on other economic sectors such as services, finance, tourism or agriculture. The justification of the selection of manufacturing firms is manifold:

- Statistically, manufacturing accounts for the largest number of total firms officially registered and operating in Oman and the GCC markets (Hvidt, 2013; Hertog, 2009); hence indicating a huge number of SMEs that can benefit from a free trade area.
- The manufacturing sector is the second most attractive sector, after oil and gas, to foreign investors in Oman and the GCC.
- Manufacturing has the capacity and huge potential to grow much faster than any other sectors in the region, and is considered as the backbone of economic diversification, growth and job creation.
- Manufacturing is a top priority in Oman Vision 2040.
- The manufacturing sector has comparative advantages in terms of having cheap inputs of energy, which helps to compete in the European and US markets.
- Oman is investing heavily in developing new industrial areas, free zones, and special economic zones such as Duqm and Sohar to attract manufacturing firms.
- The scope of productivity spillovers from the EU and US firms to Omani firms is huge in manufacturing, compared with others, because of its dynamism, innovation, technology and production techniques.

#### Quantitative Method Using GTAP and CGE

The quantitative analysis will be based on secondary data that will be collected from various sources. The study will target the relevant data available in existing literature, official publications and databases of relevant governmental and international institutions, including Ministry of Trade and Industry, Supreme Council for Planning, Central Bank, National Center for Statistics and Information, Eurostat, IMF, the World Bank, and the Organisation of Gulf Industries Consulting.

The Global Trade Analysis Project (GTAP), a widely used Computable General Equilibrium (CGE) model, will be used to quantify the various expected impacts of a GCC-EU FTA. This model will be useful in producing a simulation of a full free trade area, determining not only the impact of a total and reciprocal tariff elimination by all countries on inter-regional trade but also the impact of FTA on macroeconomics indicators, such as real GDP, employment and public finance as well as the welfare distributional effects of the policy change on Oman. Furthermore, the simulation model will provide policy makers with evidence-based research to determine both the impact of the FTA on the growth of inward investment, and whether the scope of trade creation and expansion will be larger than trade diversion, or vice versa, and whether or not the FTA will be welfare enhancing for Oman.

### **3. Research Tools for Primary Data Collection and Analysis**

Primary data collection uses qualitative and quantitative methodologies. The first method is a questionnaire through which primary data would be collected from 1000 manufacturing firms in Oman. The second method of data collection is a semi-structured, open-ended interview. Both methods gather data from the relevant participants and stakeholders identified in Phase I of the project.

### *Questionnaires*

The study will use a large questionnaire survey targeting groups of stakeholders including government officials, policy makers, civil servants, practitioners, company executives and business owners. The aim of the questionnaire - a list of carefully structured questions chosen after considerable testing - is to gather opinions from carefully selected group of experts to find out what they think about the likely impact of FTAs on their economic and business interests.

. A pilot will be conducted to test the questionnaire as fully as possible before distributing it. Although the research team will use as many distribution methods as possible to distribute the questionnaire, this study will utilise web-based tools such as SurveyMonkey, which allow to create our own survey, email it to potential respondents, view the preliminary results as they come in, and export the data file to Excel, SPSS and other software packages for analysis (Collis & Hussey, 2009). The research team will take all precautions and measures to inform the targeted groups of the questionnaire survey well ahead of the distribution in order to avoid common problems such as questionnaire fatigue, reflecting the reluctance of many people to respond to questionnaire surveys as they are inundated with unsolicited requests, and non-response bias to unreturned questionnaires (Wallace and Mellor, 1988).

### *Semi-structured Interviews*

This study will also use semi-structured interviews to collect valid and reliable data from academic experts, industry practitioners and relevant stakeholders such as Oman Chamber of Commerce and Industry, Ithraa and local and foreign investors who are concerned with the five FTAs that Oman has concluded, as well as EU and GCC officials on the potential GGC-EU FTA. Interviews are essential both to validate the questionnaire findings and to go deeper to collect additional needed information. The face-to-face interviews will be shaped by a predefined list of themes developed by the research team and resulting from the previous quantitative method. All interviews will be recorded by note-taking and digitally recorded for accuracy. A thematic analysis will be used to analyse the interviews whereby a framework of themes will be used to make comparisons and contrasts between different participants. A second group of interviewees will be senior executives and directors of a selected number of the manufacturing firms. The interview samples will target executives of large, medium and small sized industrial companies in order to give a fair representation of the distributional welfare of spillover effects from trade and investment by foreign counterparts.

#### **4. Limitations of the Methodology**

The research methods were chosen to overcome any difficulties related to data coverage, availability and linkages. However, there are a few limitations, including the followings:

- Although GCC countries have many common features of economic and social structures, there are clear differences in their development stages and private sector

maturity, which affect their degree of readiness to join a free trade agreement with the EU.

- Literature on the subject from a GCC perspective is limited at best and unavailable in many cases, which affects some historical aspects in this research.
- Detailed Statistics and survey national data are hard to access in Oman and the wider GCC.
- Some of the research team are not familiar with the use of statistical and analytical software such as GTAP, CGE and SPSS, which require further training.
- SQU does not have the CGE software, which is an essential tool for the analysis.

This study will be able to overcome such limitations in two ways:

- We hope that the engagement of some key governmental and regional organisations in this research will secure access to accurate, timely and reliable statistics for better analysis.
- The study is conducted and led by a highly qualified team of experts in Oman.
- The PI will arrange for several training sessions for the research team to acquire the necessary skills to use statistical and analytical software such as CGE.
- The GTAP data base as well as the appropriate GTAP license (GEMPACK) will be purchased by the project and be available for all SQU staff.

- **TIMELINE/ DELIVERABLES**

The research instruments and methods employed by this study are carefully selected to enable the research team to effectively collect and analyse the primary and secondary data and systematically set a realistic timeline of the project. The approach in setting the timeline is achieved by responding to several research sub-questions, each research sub-question falls under a specific phase of the project.

**Phase I: January 2020 – December 2020**

This phase will provide the groundwork of this project on how existing bilateral and regional FTAs impacted the economic development of the member states and how can Oman and GCC countries learn from past experiences. This preliminary research will attempt to answer to the following sub-questions:

- What are FTAs and why they are important tools for fostering trade and economic cooperation among member states?
- How do such bilateral FTAs as Oman-US FTA affect the internal markets of its member states?
- To what extent can Oman benefit from regional FTAs in increasing the size of its market, improving the business climate and developing its industrial infrastructure and establishments?
- What are the main obstacles of concluding an EU-GCC FTA and what benefits it could bring in to Oman economy?
- What lessons could be learned from existing FTAs and other experience in negotiating and concluding FTAs with new partners such as the EU and the UK in post Brexit?

The first phase will also target to achieve the following aims:

***Aim 1: literature review (months 1-6)***

Task 1 reviews the literature on existing FTAs that Oman has with major trading partners. The task is to determine the context, within which these agreements were conducted, and the conditions and readiness of partner economies, more specifically in the manufacturing sectors. This will provide an evaluation of the Oman-US FTA and other FTAs signed with GCC, EFTA and Singapore, as well as EU-GCC trade relations since their first cooperation agreement was concluded in 1988. The analysis will provide a summary of the strengths and weaknesses in the Oman trade policy and foreign trade relations.

***Aim 2: analysis of existing macro data (months 7-12)***

Task 2 provides an analysis of the pattern and trends of Oman foreign trade with the GCC, the US and the EU since 1981. The analysis will depend on data from Comtrade, Eurostat, International Trade Centre, the World Bank, WTO, Central Bank, and Ministry of Trade and Industry. Trade data will be categorized and analyzed using various software to determine the key exporting and importing shares in total trade and values to total exports, as well as determining factors affecting the balance of trade between Oman and its trading partners. A series of tests will be carried out to assess the reliability and accuracy of data gathered, as variation in data could affect accuracy. The Gravity model will also be used to analyze the determinants of bilateral trade, focusing on Oman and its major trading partners and estimate the effect of various FTAs signed by Oman on trade flows, and whether these FTAs resulted in trade creation or trade diversion.

***Aim 3: identify key stakeholders (months 4-12)***

Task 3 identifies key stakeholders that will be affected by the conclusions of FTAs, including senior government officials, policymakers, ministries, chambers of commerce and other organizations and entities concerned with Oman's trade and investment. We also identify key senior executives, directors of public and private companies and NGOs operating in the industrial sector. Key US, EU and other foreign companies operating in Oman, the industries they operate in, the nature of their business, percentage of their equity, type of ownership, and nature of local supply chains will also be identified.

**Phase II: January 2021 – December 2021**

The second phase will focus on primary and secondary data collection and analysis. As explained above, a mix of methods will be employed to identify the sources of data, reliability, accuracy, and accessibility. This process will involve designing questionnaires and interviews protocols and defining the main themes that will shape the nature of the project and determine the types of questions to be asked. A pilot study will be conducted on a limited number of stakeholders in order to allow for improvement in the data collection process. The quantity and quality of data collected in this phase will enable the research team to adequately respond to the following sub-questions:

- What are the dynamic effects of FTAs on the Omani economy?
- What is the size of the Omani industrial sector and its contribution to GDP?
- How can we measure productivity and exporting capability in Omani firms?
- Does an improvement in the business climate necessarily increase productivity in manufacturing firms?
- What are the main obstacles facing Omani manufacturing firms?
- To what extent can trade dynamics enhance the exporting capabilities of the firm?

The second phase will achieve the following objectives:

***Aim 4: primary data collection and analysis (months 13-20)***

Task 4 is to develop questionnaires and semi-structured interview protocols, tailored for specific respondent groups but comparable in main points to allow for comparison of responses across the five countries and regions having FTAs with Oman. Based on the list of stakeholder representatives developed in task 3, participants for the questionnaires and interviews will be selected. The questionnaires will be used to collect and measure specific data on the nature of exchanged goods, commodities and services. It will collect data on the nature of the business and industry, the kind of technology the firm has a competitive advantage in, the size of the firm in terms of financial and human capital, levels of interactions with local partners in terms of joint venture and being part of international and local value chain, percentage of local content in inputs, and experience and expertise of senior management. Semi-structured interviews will also be conducted to validate the questionnaires findings and collect additional needed information that cannot be gathered by questionnaires such as perceptions and insights of key policymakers, government officials and executives on particular trade or trade-related policies. The contents of both instruments

will be based on specific themes that allow for thematic analysis and making comparisons and contrasts between the different respondents and interviewees.

***Aim 5: Develop a systematic approach for productivity spillovers of trade and FDI (months 21-24)***

Task 5 uses the primary data from the questionnaires and interviews to map the channels, methods and mechanisms through which productivity spillover effects are transmitted from foreign firms and their goods and services to the local market, and how the efficient utilization of such effects could enhance the productivity and exporting capabilities of local firms. The analysis of primary and secondary data will also help us to differentiate between spillover effects from trade (companies trading in industrial and semi-industrial goods) and spillover effects from inward investment (joint ventures in an industrial complex). The focus of this analysis will be to develop a systematic approach that could be a useful tool for research analysts and policymakers to determine the effects of trade and FDI on the productivity and competitiveness of firms, and whether trade has the same effect on these two variables as FDI.

**Phase III: January 2022 – December 2022**

The final phase of the project will focus on the analysis of data and dissemination of research results in the public domain through publications, web presence and public seminars and conferences. Based on the quality of the data collected, the research team will be able to respond to the following sub-questions:

- To what extent could spillover effects from foreign trade and investment enhance the productivity and exporting capability of Oman manufacturing sector?
- Can FTAs alter the characteristics of the resource-based industrial sector to become highly attractive to efficiency-seeking enterprises?
- What role do knowledge, know-how and technology transfer play in the development of the industrial sector in Oman and why these factors should be implied implicitly and explicitly in future FTAs?

The final phase of the project will achieve the following objective:

***Aim 6: Final preparation of research, transcription, data analysis and production of deliverables (months 25-36)***

Task 6 is to produce research products that will disseminate the results of this research in multiple ways. First, the original working and peer-reviewed papers and any associated dataset will be posted and be accessible via SQU's websites. The research team will assemble all the materials and data prepared for the monograph, write up the final draft of the manuscript, and format it for publication with highly reputable publishers such as Cambridge University Press, Oxford University Press, Yale University Press, Princeton University Press, Palgrave Macmillan and Routledge.

**• PLAN FOR DISSEMINATION OF RESEARCH RESULTS**

The findings of this study will be widely distributed throughout the academic, political and business communities in both Oman and the wider GCC region. Given the originality and contribution of this study in the subject area, it is imperative for the research team to adequately develop both awareness and understanding of the positive effects and benefits that FTAs could have on domestic firms in their member states. The research team will not only disseminate the results of this study by engaging some key stakeholders in the research during its lifetime, but also reaching out to as many stakeholders and general audience as possible through a variety of research activities and seminars.

By the end of this study, it is hoped that three important results will be realized as follows:

### ***Publication of Peer-reviewed Papers***

The research team expects that the intellectual contributions of this original work will lead to academic publications in the form of peer reviewed papers in high impact journals, including Oxford Review of Economic Policy, Journal of International Business Studies, Journal of World Economy, Journal of International Political Economy, Harvard Business Review, Journal of International Economics or Journal of Development Studies. Tentative titles could be:

- The first paper tentatively evaluates the cost-benefit of US-Oman FTA, which entered into force in 2009, and the impact of this agreement on the trade flows and balance of trade between the two countries.
- The second paper examines the structural impediments preventing the conclusion of the EU-GCC FTA.
- The third paper explores the possibility of optimizing gains from interregional trade in the GCC.
- The fourth paper examines the role of the industrial sector in Oman's economic diversification.

### ***Publication of a Monograph***

By the end of the project, the research team will have enough data and knowledge to write a full monograph on Oman's trade and investment regime. It will place Oman within the global trading system and its efforts in trade liberalization, regional integration and bilateral and multilateral FTAs. It will explain in detail Oman's trade relations with the US, the EU, GCC, and East Asian countries. The book will be published by a reputable university press such as Cambridge University Press, Oxford University Press, Yale University Press and Princeton University Press or a global publishing house such as Palgrave Macmillan and Routledge. A book tentative title could be:

- Oman and the World Trading System: Optimizing Gains from Trade.

### ***Publication of Policy-oriented and Op-ed Papers***

This study will generate policy-oriented papers as the political and economic relations of Oman develops with her major trading partners, most notably the UK and the EU. Such papers will serve as guidance for policy makers and citizens when it comes to the preparation of resumption of trade negotiations or possible conclusion of FTA with the EU or the UK in post-Brexit. Possible titles could be:

- Is there a need for a UK-Oman FTA?
- The cost-benefit of an EU-GCC FTA for Oman.

### ***Research Seminars/Workshops***

This research project will encourage the participation of academics, researcher, policy makers, business leaders, and other stakeholders from the political, economic and business communities in Oman, the GCC, the US and the EU during the lifetime of the project. In doing so, the team will organize regular seminar series and round table discussion to debate many underlying issues of existing and future FTAs, including the long awaited GCC-EU FTA. Possible topics for the series are:

- Who benefits from FTAs?
- Oman and GCC Common Market
- Oman-UK trade relations in post-Brexit
- How effective is US-Oman FTA in reforming Oman's trading regime?
- FTAs and liberalization of services in Oman
- FTAs and modernization of Oman's industrial sector

### ***Creation of Database and Website***

We intend to store and maintain all primary and secondary data and information on a database, which will be accessible to all academics, researchers, policymakers and the general public via the project website on SQU portal.

- Database will contain all data collected during the three-year project, including macroeconomic data, trade statistics, labor market data, foreign investments, domestic investments, industrial data, R&D data, patent data, financial data, SMEs and startups and regulatory reforms. The database will be publicly accessible.

- Project website will contain all published materials, including books, book chapters, peer-reviewed papers, policy papers and op-ed articles. Other relevant materials to the project such as videos, podcasts, interviews and audio materials will also be uploaded.

#### ***International Conference***

In the third year, we will organize an international conference, in which the findings and research outputs will be disseminated to a wide variety of stakeholder and participants from Oman, the GCC, the US and the EU, as well as globally. The conference will mark the end of the project and opens new avenues for further research on the subject area. The conference will include the following items:

- Research papers presented by members of the research teams.
- Original research papers by external participants through a Call for papers.
- Outputs of high-quality papers could be revised and published in an edited book.

- **FUTURE RESEARCH PLANS**

The research team is likely to embark on further investigation to determine and examine new dynamics through which FTAs can bring about structural changes in Omani economy, most notably economic diversification, as well as general improvement in the business environment.

While focusing solely on the industrial sector in this study, there is an urgent need to thoroughly examine the effects of FTAs on the liberalization of the services sector, which contributes around 53 per cent of GDP in Oman. The rationale for the need to examine the services sector is threefold.

First, it is important to determine the commitment of the Government of Oman to comply with the WTO rules and principles on the General Agreement on Trade in Services (GATS) and whether the conclusion of FTAs will enable the country to smoothly liberalize this important sector.

Second, services is the largest contributing sector to the country's GDP, accounting for 53.2 per cent in 2017. In fact, the rise in government spending in areas such as health and education has led to significant expansion in services, as well as the revival of key sub-sectors, including wholesale, tourism, hotel and real estate, financial services and communications. This makes the sector a vital tool for economic diversification.

Third, the services sector comprises largely of SMEs, which constitute more than 98 per cent of total companies operating in the market. The considerable size of this sector necessitates the need for a comprehensive study on how this vast number of SMEs will be affected by FTAs.

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