

## CHAPTER 7

### SUMMARY AND POLICY IMPLICATIONS

*We need to have a balance between the three layers of economic reasoning- issues, theory and data.... An influential piece of work would take the theory just seriously enough and would make a clear reference to issues.*

*Edward E. Leamer (1992:49)*

#### 7.1 INTRODUCTION

This chapter provides a summary of the study, covering its purpose and the problem statement, theoretical issues, methodology, empirical results obtained and policy recommendations. The rest of the chapter is organised as follows. Section 7.2 restates the key objectives of the study. Section 7.3 presents the main insights on the general literature about IIT analysed in Chapter 2. This section is organised in parts, each presenting the key issue discussed. Section 7.4 recasts the stylised facts about South Africa-US IIT in services analysed in Chapter 3. The conclusions about barriers to trade in services, discussed in Chapter 4, are presented in Section 7.5. Section 7.6 presents the main insights about the determinants of South Africa-US IIT in services analysed in Chapter 5. The results from the testing of SAH, done in Chapter 6, are presented in Section 7.7. A summary of policy recommendations from all the chapters is presented in Section 7.8 while Section 7.9 deals with limitations of the study. The final section highlights suggestions on areas for further research.

#### 7.2 RESTATING THE STATEMENT OF THE RESEARCH PROBLEM

The key issue that informs the study emanates from the fact that the increased internationalisation (globalisation) of services with the US, the leading producer and exporter of services in the world, has both gains of trade as well as costs on the South

African economy. The implication of globalisation has been addressed succinctly by a Special Issue of the *Journal of Policy Modelling* on “Globalisation, Growth and Poverty” edited by Salvatore (2004a). However, to reap the benefits of the globalisation of services (especially sustainable development in the context of DDA), there is need to disentangle IIT from inter-industry trade flows since they have different causes and consequences. Inter-industry trade is mainly associated with comparative advantage gains and “disruptive trade growth”, while IIT is associated with non-comparative advantage gains coupled with “non-disruptive trade growth”.

The study focuses on the causes and the trade-induced labour market adjustment consequences of South Africa-US IIT in services. To tackle this question, the following sub problems are dealt with;

- (a) What do the existing theories of IIT say?
- (b) What is the structure and trend of South Africa-US IIT in services?
- (b) What are the existing barriers to South Africa-US IIT in services?
- (c) What are the empirical determinants of South Africa-US IIT in services?
- (d) Does the IIT in services with the US entail lower factor market adjustments in the services sector in South Africa?

### **7.3 GENERAL LITERATURE ON INTRA-INDUSTRY TRADE**

Chapter 2 presents general literature aimed at laying a foundation for the subsequent chapters. The review concentrates on the controversies that have been addressed in the IIT literature and the main insights are presented in Section 7.3.1 through Section 7.3.5.

### **7.3.1 Specific IIT models**

This section presents the main insights from the specific trade models such as horizontal differentiation, vertical differentiation, strategic trade models etc. The results are presented in Section 7.3.1.1 to Section 7.3.1.3.

#### **7.3.1.1 Horizontal differentiation (HIIT)**

The “love-of-variety” model for horizontally differentiated services assumes that consumers value variety in its own right. This is quite important for services like travel, where tourists would like variety of services (differentiated horizontally). The model predicts that South Africa (smaller country) will realise the larger gains from trade due to the fact that the increase in the number of varieties available to her consumers will be larger than in the US (larger country).

The “ideal-variety” model, based on the work of Lancaster (1966), assumes that every consumer has an “ideal”/ the “most-preferred” variety. The model also predicts that South Africa will reap larger gains from trade, since the increase in the number of varieties available to consumers will be bigger for the smaller country than for the larger country (US) but the benefits from trade will not accrue to all consumers equally.

#### **7.3.1.2 Vertical differentiation (VIIT)**

The following are the main insights that emerge from the analysis. Firstly, VIIT models are based on differentiation of services along the quality spectrum and are a natural extension of the HOS framework. In vertical differentiation, a common ranking of consumer preferences is associated with differences in product/service quality based on factor endowments (Falvey, 1981), fixed costs emanating from R & D (Gabszewicz *et al.*, 1981) or on the qualifications of the labour force (Gabszewicz and Turrini, 1997).

Secondly, VIIT models lead to new insights on factor adjustments and show that it is wrong to associate painful factor adjustment to inter-industry trade as done in the CHO/new classical view of trade. The adjustment costs associated with IIT in vertical differentiation (exchange of qualities) might be sizeable. Costly displacement of resources may take place as a result of specialising along the quality spectrum sustained by R & D expenses, endowments in human capital and advertising. This may help understand the anti-globalisation sentiments discussed in Bhagwati (2004) and Gomory and Baumol (2004).

### **7.3.1.3 Strategic trade literature**

The literature on strategic trade shows that relaxing the service homogeneity assumption in the standard strategic trade model developed by Brander (1981) is quite informative. For instance, in the same model driven by strategic interaction, firms become eager to trade as a result of relaxing the intensity of strategic interaction in the form of lowering the degree of service substitutability. The relaxation also shows that for a given degree of service substitutability, the incentives for international collusion are stronger in industries with a relatively low degree of market concentration.

### **7.3.2 Applicability of IIT theories developed for goods to services**

The section addresses the question as to whether goods-based IIT theories can be applied to IIT in services. Services have unique characteristics that differentiate them from goods: intangibility and transitoriness (non-storable or transportable); heterogeneity and high flexibility of production; imperfectly competitive market structure (monopolistic competition, oligopoly and monopoly) and asymmetric information and related adverse selection and moral hazard problems. However, the goods-based trade-theories are powerful enough to transcend these characteristics. Consequently the existing literature has not established major objections against using goods-based trade theories when analysing services.

### 7.3.3 Factor content of trade and IIT

The standard HOV model based on factor price equalisation (FPE), integrated equilibrium (IE), single “cone of diversification” and identical technology between trading partners has played a central role in the field of international trade. However, its assumptions are quite restrictive when it comes to international trade in services.

Firstly, the assumption of free identical technology does not make sense in the context of trade in most services where “technology” is the centrepiece of the interaction. Mode 3 (commercial presence) and mode 4 (movement of natural persons) entail trade of intellectual-based assets such as patents, copyrights, blueprints, trademarks etc. The assumption of identical technology implies that IIT has zero factor content by construction. As pointed out by Gomory and Baumol (2004), Salvatore (2004a, 2004b) and Bhagwati (2004), globalisation entails a substantial direct exchange of factor services. Later trade theories have incorporated differences in technology through modelling the productivity of factors in different countries and yield IIT in the factor content of trade.

Secondly, the standard HOV does not take into consideration trade in intermediate inputs. Producer and co-ordination services such as insurance, banking, transport etc. are an important component of total services trade. Intermediate inputs trade dilutes international differences in the combination of factors used in production. Imported intermediate services drive a wedge between a country’s total factor usage profile and its endowments and thus dampening the net factor service trade. Attempts to incorporate trade in intermediate inputs in HOV model entail imputing the factor content of imported intermediate inputs using domestic factor intensities; excluding intermediate inputs in the analysis and integrating intermediate trade with general-equilibrium features of trade, production and factor endowments while allowing technology to differ across countries. The last approach is the most comprehensive and shows that global production sharing

tends to separate the factor content of final goods/services from the country's factor endowment profile.

Finally, the assumption of FPE in the standard HOV model does not hold in services supplied under modes 3 and 4.

#### **7.3.4 Economically meaningful definition of an “industry”**

This is analysed at the level of categorical aggregation used by IIT models as well as the aggregation of international trade statistics into exports and imports from an “industry”. The rationale for the analysis is that the definition of an “industry” impacts on the level of measured IIT, the empirical explanation of the trade flows and their policy implications.

Firstly, the aggregation theory shows that factor proportions and other variables must be used simultaneously in models to test the determinants of inter- and intra-industry trade because in general-equilibrium models, none of them is independent of each other.

Secondly, with regard to the aggregation of international trade statistics into exports and imports of “industries” defined in an economically meaningful manner, several conclusions can be drawn. Firstly, there are two approaches to the definition. The first approach is the relative factor intensity definition. In this approach only goods/services produced with the same factor intensity comprise an “industry” and this is the definition adopted in HOV/HOS model. The second approach is the industrial organisation definition, which uses the industrial organisation theory of an industry (market) and is the basis of the new trade theories.

Finally, at the empirical level, the actual classification of services traded recorded in trade statistics based on technical properties, is still regarded as a rough guide to an economically meaningful definition of industries. This is manifested in the definitions of trade in services used by 1993 SNA, CPC version 1.0, BMP5, ISIC Revision 3 and MSIT (2002). However, there are flaws in this approach that emanate from the characteristics

of services such as intangibility, complementarity with factor movements (e.g. mode 3) and some services being embodied in goods.

### **7.3.5 Lessons from measurement**

The following conclusion can be drawn with regard to measurement of IIT. Firstly, almost all of the useful and useable new measures of IIT build upon the unadjusted GL. Secondly, IIT should be apprehended at the bilateral level to avoid geographical aggregation bias. Thirdly, the GL index is homogenous of degree zero hence its computation remains the same whether real or nominal data are used. Fourthly, when using the unadjusted GL index, the set of explanatory variables for IIT should include the relative trade imbalance. The analyst should, however, deal with endogeneity problem. Fifthly, MIIT are appropriate to capture the trade-induced labour market adjustment costs. Sixthly, any analysis of IIT should, if possible, first disentangle HIIT from VIIT because they have different determinants and labour market adjustment consequences. Finally, “extended” IIT is also an important component since it recognises the fact that arms-length IIT and cross-border production may be complements rather than substitutes.

## **7.4 THE STRUCTURE AND TRENDS IN SOUTH AFRICA-US IIT IN SERVICES**

Chapter 3 sought to provide some descriptive analysis of South Africa-US trade in services. The following facts emerge from the analyses. Firstly, international trade data from the SARB or BMP5 are unreliable due to lack of bilateral trade flows and insufficient aggregation. Consequently, the study uses mirrored exports and imports data from the US BEA. This data is consistent and disaggregated at a higher level than the SARB and BMP5. However there are still problems with unit values and difficulty in cording with the national accounts data from STATSSA.

Secondly, South has an unfavourable trade balance in services with the US. There are however, sectors whose deficits have increased substantially in the recent past. A case in point is telecommunications sector.

Thirdly, in terms of the ranking in sectors, tourism, transport and other private services are the leading exports and imports service sectors.

Fourthly, although it is difficult to discern trends in affiliated services due to unreported data, it is possible to see that there are more American affiliates in South Africa than South African affiliates in the US. Specifically, South African affiliates receive more from their US parents than the former receive from the latter's affiliates. In the same vein, payments to US parents by South African affiliates are more than payments to US affiliates by South African parents.

Fifthly, although there are thirty service sectors, only thirteen of them meet the 12 per cent threshold of minority as a percentage of majority flows. Consequently, IIT analysis is conducted on these thirteen sectors only.

Sixthly, it is important to disentangle HIIT from VIIT and "extended IIT" because theoretically they have different determinants and labour market adjustment consequences. However, this process is frustrated by the lack of appropriate data and it is because of this that the thesis constructs "total" South Africa-US IIT in services indices. These indices do not show the extent of horizontally (variety) differentiated, vertically (quality) differentiated and extended intra-industry trade flows. An attempt is made in Chapter 5 to infer whether HIIT or VIIT is the dominant form of differentiation by using IIT theories such as the CHO.

Seventhly, despite the data problems, IIT indices are computed while being cognisant of the need to minimise potential biases. In this regard, the indices are computed on a strict bilateral basis (South Africa Vs US) thus avoiding geographical aggregation bias. Moreover, sectoral aggregation bias is minimised in most service sectors except travel, where IIT is calculated at the most aggregated level. It is assumed that the classification used by US BEA defines an "industry" in an economically meaningful way and does not artificially lump together services.

## 7.5 BARRIERS TO TRADE IN SERVICES

International trade in services is affected by barriers, which are primarily regulatory, and differ substantially from traditional tariffs and quotas. Since the Uruguay round in 1994, these barriers are subject to negotiations in the context of GATS. Indeed, they are an integral part of the DDA signed in 2001. Consequently, an analysis of South Africa-US IIT in services would be incomplete without understanding the current state of play of barriers to services trade in the two economies.

Research in this area began only with Hoekman's (1995) pioneering work and since then a team of researchers from Australia's Productivity Commission, University of Adelaide and the Australian National University has constructed trade restrictiveness indices covering many countries including South Africa and the US. Thus, the use of existing work from the Australian researchers and construction of frequency-based measures using Hoekman (1995) methodology in this study should be viewed as a preliminary attempt at measuring barriers to trade with a view to informing South Africa-US IIT in services. The methodology of measurement and actual estimates of barriers will be improved as more research is done in this area. The following are the main conclusions and insights.

Firstly, results from the Australian research group show that restrictions have substantially increased prices or costs of many services e.g. banking (price increase of 6 per cent in South Africa and 4 per cent in the US), food-distribution (0.5 per cent in South Africa and 2.3 per cent in the US), telecommunication (20.9 per cent in South Africa and 0.2 per cent in the US). This means that there are potential benefits from reform in terms of high IIT and lower prices.

Secondly, supply of services through mode 2 is quite unique since it involves the consumer crossing the border to consume a service abroad. This has two implications for trade modelling as well as policy. From a trade modelling point of view, the uniqueness of mode 2 supply implies that analyses using weighted indices without taking into

account this characteristic, are flawed. The appropriate approach is to switch the indices by replacing mode 2 in one country with mode 2 index for the trading partner and vice versa. This would ensure that the restrictions on all modes of supply in each country convey the same message (e.g. all restrict imports of services).

From a policy perspective, a country's trade restrictions on mode 2 only serve to restrict her own exports of the service in question to other countries. Thus, to promote exports, South Africa should try to harmonise her migration and trade policies with a view to substantially reducing barriers to services supplied through mode 2. In terms of trade negotiations, South Africa should focus on barriers in the US on modes 1, 3 and 4 during the SACU-US FTA. This policy recommendation is also useful for NEPAD or AU initiatives on international trade in services.

Finally, using the GATS schedules (1994-1998), South Africa has higher trade barriers in most services (telecommunications, banking) than the US, which is typical of a number of low and middle-income economies. There are, however, some services where the US has more restrictions such as engineering services, distribution services, and architectural services.

Overall, the thesis was successful in answering the research question regarding the nature of barriers to South Africa-US trade in services.

## **7.6 DETERMINANTS OF SOUTH AFRICA-US IIT IN SERVICES**

Chapter 5 focused on the fourth research question regarding the empirical determinants of South Africa-US unaffiliated IIT in selected services over the period 1994-2002. Despite data limitations, the thesis successfully answered this research question. Dynamic panel data techniques within a GLM framework is used to model log odds of IIT but bootstrapping techniques (pooled standardised error approach and Liu-Davidson-Flachaire wild bootstrap approach) that are robust to heteroscedasticity are employed to supplement the classical approach of statistical inference. The bootstrap approach

showed that the dynamic panel data parameter estimates are unbiased and the model forecasts IIT within the 0 and 1 range as required by the Grubel and Lloyd (1975) index. The study found that, in principle, South Africa-US IIT in the selected services is determined by factors similar to those in other “North-South” IIT studies (see Table 10.1 in Greenaway and Milner, 2002: 184).

Firstly, there is a significant negative relationship between log odds ratio of IIT and per capita income difference (economic distance). The negative relationship means that South Africa-US IIT in services, which involves relatively dissimilar economies, is inimical to intra-industry specialisation and trade in homogenous and horizontally differentiated services. Additionally, since the finding is consistent with CHO model, it implies that although the study does not disentangle HIIT and VIIT, the former seems to dominate the latter in South Africa-US IIT in services. This results is inconsistent with the work of Stanley and Clark (1999) on merchandise trade which show that the US IIT with developing countries is essentially VIIT

Secondly, the difference in market size is significant and negatively related to odds ratio of IIT. Thus the limited market size in South Africa reduces the opportunities for firms to innovate and produce differentiated and competitive services as compared to the US.

Thirdly, there is a positive relationship between FDI and IIT implying that the US multinationals in South Africa play a complementary role rather than displacing exports by South Africans. This calls for the need to promote investment from the US to facilitate service exports.

Fourthly, the rand-dollar nominal exchange rate has limited positive effect on the South Africa-US IIT in the selected services. This only holds if export and import contracts are denominated in US dollar terms. In cases where this is not true for instance in case of American students studying in South African universities, where the fees are quoted in rands, this conclusion may not hold.

Fifthly, trade openness for services in South Africa and the US did not play much role for IIT during the period 1994-2002. This highlights the fact that the reason for the limited penetration of the US market by South African exporters of services does emanate from trade restrictions but rather economic distance and other factors.

The study shows that there are negative service-specific effects in education and training services; legal services; management consulting and public relations services; ocean port services; research development and testing services and tourism services. The negative relationship for these services means that there are some unique characteristics, which, hamper South Africa-US IIT in services and should be identified using firm level surveys.

The time-specific effects are negative during the period 1994-1998 and positive thereafter. This is consistent with trade liberalisation in South Africa.

## **7.7 FACTOR MARKET ADJUSTMENT EFFECT OF IIT**

The final research question focuses on the South Africa-US IIT-induced labour market adjustment costs (SAH). In other words, is the expansion/contraction of this trade disruptive to labour markets in South Africa? This research question emanates from the postulation that HIIT entails lower factor-market adjustments than inter-industry or VIIT. The tricky issue with this research question is how to isolate the contribution of US trade to job losses in South Africa's globalising services sector. In effect the research question touches on growth, trade and poverty in a globalising South African economy (Salvatore, 2004a, 2004b). Salvatore (2004b: 545) underscores this issue by arguing that "... service industries are not immune to global job competition".

The study had limited success in answering this research question due to lack of appropriate data. Nonetheless, it attempts to make inferences about SAH using descriptive analysis of the total MIIT indices. The descriptive analysis, using Brühlhart

(1994) and Azhar and Elliot (2003) indices, provides some indications of the sectors that South Africa seems to have specialised “into” and “out of”.

The study shows that MIIT is low for most service sectors remotely suggesting that since South Africa-US trade is dominated by HIIT (Chapter 5), it potentially entails high labour adjustment costs. Although it is not possible to test whether the trade led to high labour-market adjustment costs, the finding can inform negotiating priorities and strategies for South Africa. For instance the results may be used by South Africa to press for concessions during trade negotiations with the US on services.

## 7.8 POLICY RECOMMENDATIONS

Firstly, there is an urgent need for STATSSA and SARB to discard the use of the BMP5 in collecting services trade data and adopt MSITS (United Nations: 2002). The importance of such data is underscored by the United Nations (2002:10) as follows “..aid in evaluation of market access opportunities; inform decisions on negotiating priorities and strategy; support the comparison of commitments; facilitate the assessment of the extent of liberalisation achieved in specific services and markets; and provide statistical background for the settling of disputes.” Similarly, the services sector is one of the priority sectors of NEPAD<sup>27</sup> and one pan African initiative is to encourage all member countries to compile a comprehensive database of services by adopting the MSITS (United Nations, 2002).

Secondly, South Africa’s trade restrictions on mode 2 (consumption abroad) serve to restrict her own exports of the service in question to the US and other countries. Consequently, in her quest to promote exports, South Africa should harmonise her migration and trade policies with a view to substantially reducing barriers to services supplied through mode 2. In terms of trade negotiations, South Africa should focus on barriers in the US on modes 1, 3 and 4. This policy recommendation is also useful for the NEPAD initiatives on international trade in services.

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<sup>27</sup> <http://www.nepad.org/en.html>

Thirdly, the fact that there is a significant negative relationship between IIT and per capita income difference (economic distance) means that South Africa-US IIT in services is inimical to intra-industry specialisation and trade in homogenous and horizontally differentiated services. This shows that South Africa-US trade in services does not satisfy industrialisation aims (technology transfer, greater economies of scale etc.) and would involve higher factor adjustment costs in terms of job losses. The policy implication of this scenario is that South Africa should view the services component of the SACU-US FTA with caution and use trade and industrial policy strategically to fashion the location of production in Southern Africa in the hope of deriving future scale advantages in services. Indeed, South Africa could promote narrower regional integration and trade liberalisation involving trade between close and economically similar economies such as the AU countries.

Fourthly, the study shows that the limited market size in South Africa reduces the opportunities for firms to innovate and produce differentiated and competitive services as compared to the US.

Fifthly, the study shows that there is a positive relationship between FDI and IIT implying that US multinationals in South Africa play a complementary rather than a supplementary role. Thus there is need for an intensification of initiatives to promote investment from the US such as the American Chamber of Commerce in South Africa (AMCHAM)<sup>28</sup>.

Sixthly, the study shows that there are negative service-specific effects in education and training services; legal services; management consulting and public relations services; ocean port services; research development and testing services and tourism services. This means that there are some unique characteristics, which hamper South Africa-US IIT in services and should be identified using firm level surveys.

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<sup>28</sup> A detailed list of AMCHAM members is presented on their website <http://www.amcham.co.za/>

## 7.9 LIMITATIONS OF THE RESEARCH

Although the thesis attained most of its objectives, there are some problems related to lack of data. To be able to successfully perform such empirical research, there is need for availability of quality- and quantity-based data on trade in services as well as and proximate determinants of IIT. Such data are lacking and the thesis used proxies for some variables.

Firstly, in view of lack of exports and imports data in South Africa, the study uses mirrored data (US exports treated as South Africa's imports and vice versa). While this is an approximation, an analysis using trade flows from South Africa's perspective is more reliable.

Secondly, the available GATS schedules used to construct the Hoekman (1995)-type indices are based on the period 1994-1998. It is assumed that the same restrictions remained up to 2002. Such assumption may not be true and could bias the estimation results.

Thirdly, the lack of sectoral deflators led to the analysis using nominal trade data, which may not be appropriate since price effects are not factored out. It is, however, imperative to note that the GL index is homogenous of degree zero and thus not affected by this limitation.

Fourthly, the data on employment from STATSSA commonly used, as a proxy for labour adjustment costs, is not available at the same level of aggregation as the trade data from BEA.

Fifthly, the South Africa-US trade in services is about 18.5 per cent of total trade in services implying that the labour market dynamics in South Africa's service sector cannot be attributed to her trade with the US per se. There is need to incorporate the remaining 81.5 per cent of the trade. Unfortunately there is no readily available trade data on

services between South Africa and the remaining countries. Additionally, in a globalising world, service industries face global job competition, which makes it difficult to isolate the role of the US trade.

Finally, it is inappropriate to try to explain labour-market adjustment using MIIT indices within a bivariate setting because changes in labour allocation reflect adjustments in production structure while changes in trade patterns reflect changes in production and demand. This therefore means that information on changes in domestic final-services demand and changes in input usage is required. Moreover, there is need to get information and price changes induced by the liberalisation. All these pieces of information are not readily available.

It is, however, hoped that these limitations are not so severe as to limit the usefulness of the study.

## **7.10 SUGGESTIONS FOR FURTHER RESEARCH**

Once data is available, the following research could be performed. Firstly, if data on volumes and prices are available, a similar analysis could be done for HIIT and VIIT separately.

Secondly, there is need to use the Australian researchers approach to construct trade restrictiveness indices for services, which can then be used as a determinant of South Africa-US IIT in services. The thesis uses frequency-based measures based on GATS schedules, which are a “wish list” and not the actual restrictions.

Thirdly, at the econometrics front, the hypothesis tests could be done employing bootstrapping within a Bayesian framework using Rubin’s (1981) method as opposed to the Efron’s (1979) bootstrap approach used in this thesis.

Fourthly, an analysis could be done to identify the factor content of South Africa-US IIT while being cognisant of the unique characteristics of services e.g. movement of factors of production across borders in some cases (modes 2, 3 and 4). This should then be followed with a thorough test of the SAH.