Enhancing Governmentally Sponsored Export Promotions Through Better Segmentation of the Market of a State's Manufacturing Concerns

By: Nicholas C. Williamson; Steven M. Cramer; Susan Myrden

Abstract:
This article presents methodology for identifying product categories that, if they were made the subjects of a specified state's export promotions, would hold promise for satisfying relevant needs of members of three key "stakeholder" groups regarding the outcomes of the governmentally sponsored export promotions: the World Trade Organization (WTO), managements of non-exporting, small- and- medium-sized (SME) manufacturing concerns, and governmental entities who are responsible for raising funds to support such promotions. Methodology is applied in the context of a state in the United States (North Carolina).

The methodology is then applied in the context of a state in the United States (North Carolina). The presentations of the results of the application of the methodology at each of the 2-, 4- and 6-digit HS-coded product category levels are in each case followed by discussions of implications of the results.

Article:

I. INTRODUCTION

The topic of governmentally sponsored export promotions has received significant coverage in *The International Trade Journal* in the past (e.g., Crick, 1997; Czinkota and Wongtada, 1997; Hibbert, 1998; Mahone, 1995; Richardson, 1990; Samli and Donaldson, 1997; Shelburne, 1997; Zacharakis and Eshghi, 1997). Among these works are articles that address themes that have received widespread coverage in the literature. For example, Hibbert's work concerns the evaluation of the effectiveness of governmentally sponsored export promotions, a topic that continues to receive attention, with little resolution as to the effectiveness of such promotions. To illustrate, Gorg, Henry, and Strobl (2007) evaluated data concerning Irish manufacturing plants and conclude from the results of their empirical research that there is little evidence that export promotions are instrumental in causing non-exporters to become exporters.

In contrast, Lederman, Olarreaga, and Payton (2006) and Egger and Url (2006) empirically establish positive effects of export promotions on exports, though the results are established using different domains of measurement than that used in Gorg, Henry, and Strobl. Lederman, Olarreaga, and Payton (2006) analyze data taken from export promotion agencies (EPAs) around the world and find that promotional expenditures are useful in causing non-exporters to export, though this result was restricted to relatively large firms. Egger and Url find that export credit guarantees have a beneficial effect on Austrian exports.

The work of Czinkota and Wongtada (1997) deals with another topic that has received significant coverage in the literature on export promotions: identifying industries that are highly competitive in the global marketplace.

They assert that highly competitive industries "… are more productive, more willing to invest in themselves initially, and more high technology-oriented" (p. 31). They further specify the benefit of identifying such industries when they state that "… it pays to orient an export promotion policy along the winners, helping them to win more, rather than trying to involve everyone in the global marketplace" (p. 31). Czinkota and Wongtada then conclude their work with a call for action in a fashion that is congruent with the aims of this article. They state that "… governmental economic development authorities would be well advised to expend their limited resources on segmentation [of manufacturing companies in the United States] and subsequent selective export promotion" (p. 32).

There is evidence (Conlan and Sager, 2001) that similar needs are also felt among persons who are involved in governmentally sponsored export promotions at the level of the *individual state* in the United States, In commenting on the export promotion needs of states such as California, Minnesota and New York, Conlan and Sager echo the tone and content of Czinkota and Wongtada (1997) when they allude to the importance of "… the identification of key [successful] industries or clusters …" (p. 15). The reason that they give for this importance is clear when they point to "… fiscal constraints … [as the] … most frequently mentioned constraint on state international activities" (p. 23).

However, up until this point, there has been no methodology described in the literature that enables persons working for state governments to identify *individual states' industries* that have experienced significant success in global export markets. A key goal of our article is the provision of such a methodology.

The methodology described in this paper enables persons working for state governments and involved the conception and offer of export promotions to better segment the manufacturing concerns of the state so as to highlight manufacturing industries that are highly competitive in their respective global export markets. Upon the identification of such, these persons can contact managements of non-exporting manufacturing concerns in the state in which the highly competitive industries are located and provide them with objective evidence that they would likely experience success in the focal global export product markets if the firms were to commence export activities.

Restricting our focus to non-exporting manufacturing firms has two key benefits. First, doing so reduces any ambiguity regarding who is responsible for instigating any given non-exporting manufacturing concern to commence exporting. Miles Friedman, Executive Director of the National Association of State Development Agencies, confirmed the relevance of this when he pointed to the importance of the issue of "causality" regarding what the motivation was behind the increase in or commencement of any given firm's exporting activities (2005). Second, when a non-exporting manufacturing concern becomes an exporter, then a stream of benefits (tax revenues and jobs) for the affected state is created where none previously existed, a stream that in many cases extends into the distant future.

Additionally, the segmentation methodology that we present emphasizes the identification and targeting of non-exporting firms that are small- to medium-sized (SME) manufacturing enterprises. First, there is evidence that SME manufacturing concerns have in recent years performed better than their larger counterparts in responding to the globalization of trade, investment and production ("New Challenges for Trade …", 1999). Empirical evidence that potentially substantiates this contention is presented by McCurdy (2003), who states that between 1992 and 2001, SME exports in the United States increased by 113.6%, while their large counterparts' exports increased by just 56.3% over the same time period. (To be fair some part of this difference may be attributed to the fact that the size of the base of exports for SMEs in 1992 was smaller than the size of the base of exports of large firms in that same year.)

Additionally, there has been an increase in focus of governmentally sponsored export promotions targeting SMEs due to the notion that SMEs tend to be relatively more responsive to governmentally sponsored export promotion programs than their larger counterparts. In "New Challenges for Trade …" (1999) the case is made that large firms are likely to have the resources to independently engage in their export activities and, in some

cases, are apt to view governmentally-sponsored export promotional programs as interfering with their business activities. Crick (1997) provides a supporting perspective when he says that "… [t]he larger companies will probably export no matter what [governmentally sponsored] schemes are on offer" (p. 141). Crick concludes that "… resources may be more efficiently utilized if offered to SMEs that need to be encouraged to export" (p. 141).

Another feature of the methodology that is presented herein is that it is structured to accommodate key needs of three important "stakeholder" groups regarding the outcomes of the specified export promotions:

   a. managements of non-exporting SME manufacturing firms,
   b. governmental entities who finance the export promotional activities, and
   c. the World Trade Organization.

We argue that, absent the specified structuring of the segmentation methodology that will be presented, the outcomes of any given export promotion may simultaneously lead to the dissatisfaction of the needs of the members of one stakeholder group and the satisfaction of needs of the members of another stakeholder group.

At this point, one might rightfully conjecture whether this paper, one that is on its face methodologically based, should be viewed as a paper that mainly addresses export promotions. After all, works on export promotions typically deal with such subjects as governments':

   a. offer of subsidies to producers,
   b. gathering information,
   c. performance of market research,
   d. encouraging participation in a fair abroad, and
   e. facilitating access to export credit.

To deal with this potential concern, we present the definition of "export promotion" that we employ in this article, a definition that was presented by Seringhaus (1986): "export promotion refers to all public policy measures that actually or potentially enhance exporting activity either from a firm, industry or national perspective" (p. 55).

Using the definition of Seringhaus, this article clearly falls within the domain of works that concern export promotion, since the result of the application of the methodology in this article potentially enhances exporting at the firm level insofar as the communication of objective information to management of a non-exporting manufacturing firm concerning the likelihood that the firm would experience success in the global export product market would have the potential for causing that firm to commence exporting.

Further support for this position is found in Diamantopoulos, Schlegelmilch, and Tse (1993), who provide a multi-phase framework for classifying export promotions. They state that "…[i]n the first phase, companies are motivated to become involved in exporting through awareness of export opportunities and benefits to be derived from pursuing such opportunities" (p. 7). Since the core of our article concerns providing non-exporters with objective information that makes them aware of export opportunities, then we feel confident that our methodologically intensive article is best described as a paper that is most centrally concerned with export promotions.

The balance of this article is organized as follows. Part II presents the previously identified stakeholder groups' needs that are addressed by the methodology that is detailed in this article. Part III gives the specifics of the methodology that, we affirm, an export promotions analyst working for a state government in the United States can use for identifying a product category that has promise for satisfying the identified needs of the three stakeholder groups. Part IV demonstrates the utility of the methodology by presenting the results of its application from the perspective of a given state in the United States (North Carolina).

II. RELEVANT NEEDS OF MEMBERS OF THE THREE IDENTIFIED STAKEHOLDER GROUPS

The three stakeholder groups whose relevant needs are addressed herein are:

1. managements of non-exporting SME manufacturing concerns,
2. persons with the World Trade Organization (WTO) who are concerned with whether or not export promotions distort trade, and
3. governmental entities who are responsible for funding export promotional programs.

Applicable needs of members of each of these groups are now described in turn.

A. Members of managements of non-exporting SME manufacturing firms and the need to establish their firms' competitiveness in their respective U.S. export product markets

A typical objective of product-based and governmentally-sponsored export promotional programs is to cause relevant U.S.-based non-exporting SME manufacturing concerns to commence exporting activities. We assert that a vitally important factor in compelling these firms' managements to behave in this fashion involves providing them with objective evidence that their firms *would likely be competitive in their relevant U.S. export product markets if they were to commence exporting activities.*

The works of Carrier (1999), McAuley (1993), and Cavusgil (1980) can be used to support this contention. According to Carrier, a driving reason behind the reticence of small firms to become involved in exporting concerns the notion that most managements of these firms "… had the impression that all the firms in their sector [small firms] were fairly weak in this activity [exporting]" (Carrier, p. 33). Apparently, the perceptions of weakness in exporting reduce the likelihood that managements of these non-exporting SME firms will move forward in exploring exporting, since "… the perception of feasibility [in exporting] is a key factor that incites people to take action [i.e., commence export activities]" (Carrier, p. 40).

In a related sense, Cavusgil (1980) says that the non-exporter's uncertainty concerning the anticipated benefits of exporting will frequently preclude the firm from even going forward in an information search related to the commencement of export activities. In short, the perceived supply-side risk concerning the likelihood of negative outcomes of export activities frequently inhibits the non-exporting SME manufacturing firm from going forward in exploring the export domain in the first place.

- B. The WTO, governmentally sponsored export promotions, and the distortion of trade

Czinkota (2002) describes how the WTO has since its inception in 1994 taken a close look at a variety of export promotion activities. Apparently, persons with the WTO have concluded that *export promotion activities that distort trade are fundamentally unacceptable*. Such a conclusion likely stems from the movement of "… trade rules from the principle of 'avoid discrimination' between countries (the 'most favored nation' principle of the old General Agreement on Trade and Tariffs), to 'avoid trade … distortions …'" (Wade, 2003, p. 627) under the World Trade Organization.

The concept of comparative advantage is one of the few principles that are accepted by the WTO for the purpose of establishing whether or not a given product-specific export promotional activity would have the propensity to distort trade. Laird (1999) suggests this when he discusses the importance of the role that the principle of comparative advantage plays in the WTO's efforts to ensure "… greater neutrality of treatment of [product-based] sectors …" (p. 74) in the WTO's activities.

The WTO's position regarding trade promotions and the distortion of trade appears to have influenced the policies of trade-related organizations other than the WTO. In the 1998 World Conference of Trade Promotion Organizations, there was acknowledgement that trade promotional activities should not infringe on free international competition ("World Conference of Trade …", 1998).

- C. Entities who fund product-based export promotional activities and the need to promote products that offer the best prospects for future growth in tax revenues and jobs

In again referring to the work of Conlan and Sager (2001), work that points to the primacy of "fiscal constraints" as hindrances to the expansion of states' product-based export promotion activities, we posit that entities who fund these promotions probably either explicitly or implicitly employ an "opportunity cost" framework in selecting products to target. This is consonant with the previously described work of Czinkota and Wongtada (1997) and implies a ranking of industries regarding each industry's priority for receipt of such promotions, based upon the export competitiveness of manufacturing firms that collectively constitute the industries.

A cursory assessment of Czinkota and Wongtada (1997) might lead one to conclude that the sole determinant of the appeal of industries regarding their being targets of such promotions is the export competitiveness of the industries. We, however, are confident that there are other issues involved. To prove our point, we take an example that comes from the classical managerial marketing literature: the industry of buggy whip manufacturing companies. Assume for the moment that a given state (e.g., North Carolina) was home for the most globally export competitive manufacturers of buggy whips on earth. If the export competitiveness of an industry were the sole characteristic of an industry that determined whether or not the industry would be the recipient of product-based export promotion resources, then there would be no question that the buggy whip manufacturing industry would be at the head of the line of industry recipients of such promotions.

However, most readers would understand that this is not the case. They would know that the prospects for tax revenue and job growth in the future for the buggy whip manufacturing industry would be dismal. They would know that an additional dimension that would be of interest to entities who fund such export promotions would almost certainly be prospects for export revenue growth. As evidence of the value of incremental export revenues, we cite, for example, Czinkota and Ronkainen (2003) and Davis (1989), who provide estimates of the number of jobs created per extra billion dollars of export revenues generated: 11,500 jobs and 22,800 jobs, respectively. Estimates of state and federal tax revenues generated per billion dollars in export revenues are estimated to be as high as $400 million (Shaw, 1977). Consequently, we are confident that a key factor that comes into play when persons involved in the funding of product-based export promotions evaluate industries as possible recipients of such promotions concerns *the industries' future prospects for export revenue enhancements*. Such persons would undoubtedly know that increases in tax revenues and increases in jobs follow quite closely export revenue increases.

Having described the needs of the three identified stakeholder groups that, we argue, influence the identities of product categories that are selected for export trade promotion purposes, we are now in a position to present the methodology that is central to this article.

III. A METHODOLOGY FOR ENHANCING GOVERNMENTALLY SPONSORED EXPORT PROMOTIONS THROUGH BETTER SEGMENTATION OF A STATE'S MANUFACTURING CONCERNS

The presentation of our methodology for segmenting a state's manufacturing firms involves:

a. an enumeration of the relevant segmentation variables;

b. a specification of how each variable is to be created;
c. an identification of the sources of data that will be used to supply values for the variables; and
d. a description of how the values of the resulting segmentation variables are to be presented visually.

The segmentation variables are:

- The Revealed Comparative Advantage (RCA) variable, as first presented in the literature by Balassa (1965);
- A state "competitiveness" variable regarding the export of a specific product, a variable that is created through the shift-share analysis of exports as measured across competing states and within a specific product category over a specified time period;
- A shift-share generated "portfolio" variable that reflects the extent to which a state's exports of an identified product category have gained (lost) share in that state's overall "portfolio" of exports over a specified time period;
- A binary variable that indicates whether any small or medium-sized (SME) manufacturing company located in a specified state exported a specific product within a specified time period; and
- A binary variable that indicates whether or not there existed the export of a specific product during a specified time period by an SME manufacturing concern located in a specific state where the export transaction was *not* one that involved further fabrication of the product and/or assembly of the product into a new product, for future export back into the United States.

A. Method for creating each of the five identified variables

1. The Revealed Comparative Advantage (RCA) variable

Perhaps the most widely used measure in the trade and development policy domain that draws from the theory of comparative advantage is the Revealed Comparative Advantage (RCA) measure (Webster, 1991), first introduced to the literature by Balassa (1965). The concept of RCA concerns the evaluation of the preponderance of a given country's exports of a specified product in the country's overall "portfolio" of exports, in comparison with the preponderance of exports of that same product in the overall portfolio of exports of that country's trading partners, taken as a group. The underlying theory indicates that the more preponderant exports of a given product are in a focal country's portfolio of exports, in comparison with its trading partners, the greater is the "revealed" comparative advantage that the country has in producing and exporting the focal product. The following formula is used to calculate the revealed comparative advantage that country "j" experiences regarding the export of goods produced by companies from industry grouping "i":

$$RCA_{ij} = (x_{ij}/X_j)/(x_{iw}/X_w)$$

Where x_{ij} is the export figure for industry "i" by country "j",

X_j is the total export figure for country "j",

X_{iw} is the world export figure for industry "i", and

X_w is the total world export figure, across all industries.

The greater is the extent to which the calculated quotient is greater than one, the greater the focal country's revealed comparative advantage in producing and exporting the product under consideration. Policy makers of the focal country are advised to promote exports of the output of industries involved in the manufacture of goods in which the country has a revealed comparative advantage in exporting. Doing so would presumably enable the associated exporting companies in the identified industries to increase exports of the focal product by

further capitalizing on unspecified advantages that the firms in the focal country apparently have, advantages whose existence has been indirectly "revealed" in the outcomes of the RCA computations.

There are, however, problems associated with relying on the RCA measure *alone*, for the purpose of determining the export competitiveness of a given country with respect to a specific product-based industry. First, the RCA figure for country "j" with respect to industry "i" is *portfolio-dependent*. For example, RCA_{ij} can go up in a specified year for reasons that do not relate directly to the global export competitiveness of country "j"'s companies in industry "i." Particularly, RCA_{ij} can go up in the specified year at the same time that country "j"'s exports of industry "i"'s products, x_{ij}, *go down if country "j"'s value of its total portfolio of exports*, X_j, *goes down by more than a proportional figure in that year*.

A second problem with the use of the RCA measure *alone* for the purpose of determining the export competitiveness of a given country with respect to a specific product-based industry is that the measure is cross-sectional in nature and is thus subject to reliability-based problems that are inherent in measures that involve the evaluation of data from only a single year. Evaluating the export competitiveness of a given country's firms in a specific industry using just one year's data is a risky proposition. For example, the RCA figure is likely to bounce up and down over time, based upon "one off" events that influence the exports of one or a couple of major firms in the focal industry. And the extent to which it bounces up and down may be further influenced by "portfolio dependency" effects, previously described.

To compensate for the stated shortcomings of the RCA variable, we propose to use as an additional segmentation variable a competitiveness variable that is created through the shift-share analysis of export data of "competing" states in the United States regarding a specific product and over a stated time period. The shift-share variable that will be described establishes *directly* the competitiveness of a state's firms that serve a specific product-based U.S. export market, without the previously described portfolio-dependency problem of the RCA variable. Additionally, shift-share analysis typically covers a span of several years of data and is thus less susceptible to "one off" effects frequently encountered when the RCA variable is used.

- 2. Shift-share analysis of exports performed across states in the United States and with respect to a given product category over a specified time period

As reflected in Buckley, Pass, and Prescott (1988), an entity's "… percentage share of exports relative to a matched comparator … is a measure of export competitiveness …" (pp. 179-180). The change in a country's share of the global export market for a product over a specified time period is a reflection of that country's export competitiveness in comparison with the other countries that serve the same global (or regional) export product market (Wilson, 2000).

As Coughlin and Pollard (2001) demonstrate, shift-share analyses can also be used in comparing the export competitiveness of individual states in the United States with respect to products. We use the shift-share analysis method described in Green and Allaway (1985) to evaluate the competitiveness of a specific state (e.g., North Carolina) in comparison with other states in the United States concerning the export of specific products measured at the 2-, 4- and 6-digit Harmonized System (HS) code levels and extending over a specified time period. In line with Green and Allaway (1985), we transform the raw net shift figures into percentage net shift figures when computing values for this specific shift-share variable. This permits us to make comparisons across product types on this variable.

It is useful to conjecture on why persons involved in governmentally-sponsored export promotions have not made greater use of shift-share analyses in identifying products to promote in the past. A likely reason is that shift-share analysis does not have the same level of legitimacy in the literature that Revealed Comparative Advantage (RCA) has concerning the identification of products for export promotion purposes, as previously stated.

While shift-share analyses may not have the same level of legitimacy in the literature as does RCA regarding the acceptability of the outcomes of associated analyses to WTO officials in their evaluations of product-based export promotions, shift-share analyses can be used to generate results that, we feel, will be highly interesting, useful and motivating to managements of non-exporting manufacturer SMEs. A central reason concerns the likely intuitive appeal to these managements of results relating to a relevant state's gain (or loss) of share in a specified U.S. export product market and over a presumably recent time period. For example, if management of a non-exporting SME that produces a specific 6-digit HS-coded product (e.g., HS 611511, "pantyhose and tights of synthetic fibers measuring per single yarn less than 67 decitex, knitted or crocheted") and that is located in a given state (e.g., North Carolina) were to determine that domestically competing producers of HS 611511 products in that state had made dramatic gains in share of the U.S. export market for HS 611511 products in a recent time period, *this would likely reduce significantly for that management the perceived supply-side risk associated with moving forward in the export domain*. (Further perceived supply-side risk reductions would accrue for the focal SME's management if it could be established that at least one of the exporting manufacturers in the relevant state was an SME. That topic is dealt with in Subsection 4 of Section A.)

As previously argued, the competitiveness of a given state's manufacturers with respect to their export to a specific U.S. export product market would likely not be the only area of importance to persons who are involved in the funding of that state's governmentally sponsored export promotional programs. Such persons would probably also be interested in how recent changes in the magnitudes of export revenues of focal products compare with recent changes in the magnitudes of export revenues of *other products* in their respective state's overall "portfolio" of exports. Comparisons made using such information would conform to the "opportunity cost" framework previously alluded to. Also, such comparisons should assist the export promotions analyst in identifying those product-based industries that might be considered "sunset" industries. The meaning and implications of the "sunset" industry characterization are presented below.

- 3. A variable created by the shift-share analysis of exports conducted across product categories and within the overall "portfolio" of exports of a given state

A shift-share analysis that complements the directly preceding one and that is targeted more at the needs of the state governmental authority who *funds* export promotion activities is one that evaluates the export performance of each relevant 2-, 4- and 6-digit HS-coded product category within the focal state's overall "portfolio" of exports over a recent time period. Presumably, state officials who are responsible for funding export promotion activities would be highly interested in learning of the identities of individual product categories that have gained share and lost share in terms of export revenues in this portfolio in the recent past. One might conclude that, ceteris paribus, these officials would be more interested in funding export promotions targeted at product categories that have recently gained share in this portfolio. Such gains could be argued as signifying the product categories that are, at the margin, most likely to be the biggest export-related job creators and tax revenue enhancers in the state in the near future.

Such a variable is also potentially useful in terms of identifying for the governmental entity who funds export promotions those product-based industries that might be characterized as "sunset" industries. To illustrate, we again use the example taken from the classical marketing management literature—the industry of buggy whip producers. Hypothetically, a given state's exports of buggy whips might be a relatively (though likely not absolutely) large proportion of the state's overall portfolio of exports (thus generating a relatively large RCA figure for the state), and the state's exports of buggy whips might be gaining share of the overall U.S. buggy whip export market (thus generating a gain of share for the state on the shift share-based "competitiveness" variable), but the state's exports of buggy whips might at the same time be dropping precipitously in terms of the buggy whip producers' share of that state's overall portfolio of exports.

Any product-based industry where such a profile of calculated outcomes is realized is a good candidate for being labeled a "sunset" industry. The "sunset" characterization refers to the negative prospects in the domain

of future export-related tax revenue enhancement and job creation. Thus, any high valuations of export competitiveness of a state's producers of a focal product in a "sunset" industry would likely be seen as factors of secondary importance in the eyes of the entity who funds governmentally-sponsored and product-based export promotions.

The mathematical structure of the shift-share procedure to be used in establishing the extent to which a state's exports of a focal product are gaining (losing) share of the state's overall "portfolio" of exports is the same as the one alluded to in Subsection 2 (Green and Allaway, 1985). However, for this latter shift-share variable, the "comparator" (Buckley, Pass, and Prescott, 1988) is not the state; it is the individual product in the focal state's overall "portfolio" of exports. Again, we transform the raw net shift figures into percentage net figures, in line with the recommendation of Green and Allaway. Since all product categories in a state's overall portfolio of exports are simultaneously evaluated against each other in this shift-share application, then the resulting variable that is created can be said to conform to an "opportunity cost" framework.

Earlier in the article, we address the issue of adapting the methodology proposed in this paper to target either tax revenues or jobs. We justify the need to adapt the methodology in this fashion when we later in this paper present the results of analyses of data taken from both the Global Trade Information Services (GTIS) State Export Series database and also from the Office of Trade & Industry Information of the U.S. Department of Commerce. The results of the analyses indicate large differences in export revenues per job created by exports across identified product categories, thus implying the potential de-coupling of tax revenues and jobs as objectives of governmentally sponsored export promotion activities.

- 4. A binary variable concerning whether any SME producer in a given state exported a product with a specific 6-digit HS code number in a stated time period

The method for calculating this binary variable is straightforward. The variable receives a value of "1" if there is valid evidence that an SME manufacturing concern located in the focal state exported the identified 6 digit HS-coded product during the relevant time period, and "0" if otherwise.

- 5. A binary variable that indicates the existence of the export of a specific product during a specified time period by an SME manufacturing concern located in a specific state where the export was *not* made with the objective of the further fabrication of the product and/or assembly of the product into a new product, for ultimate export back into the United States

In the latter part of 2007, Costa Rica became the last Central American country (joining El Salvador, Honduras, Nicaragua and Guatemala) to sign the Central American Free Trade Agreement, also is known as CAFTA-DR, since it includes the Dominican Republic as well. Similar to the NAFTA agreement, this wide-ranging agreement was intended to further integrate the economies of the affected Central American and Caribbean countries with that of the United States, with a variety of economic and political benefits to be derived as a result.

One key benefit of CAFTA-DR that is of sizeable importance to the aims of this article concerns the associated "near-sourcing" (Shister, 2008) opportunities that open up for U.S. manufacturing companies:

"Near-sourcing constitutes a fusion of the extended supply chain business model and earlier forms of more localized enterprises. Think of it as a kind of 'mid-way' point, optimizing such functions as labor, materials and fully landed costs with risk management, speed to market and distribution flexibility." *(p. 40)*

An anticipated outcome of the CAFTA-DR agreement is that U.S. manufacturers employing "near-sourcing" business models will export products to CAFTA-DR countries, for their further fabrication and/or assembly of these items into new products, where the ultimate destination of the resulting goods is the U.S. market.

U.S. exports that are a part of a "near-sourcing" supply chain business model are not ones that are addressed by export promotions, since U.S. exports made with a "near-sourcing" objective are ones made *not with the objective of satisfying needs of foreign buyers, but rather made with the objective of lowering the production cost of goods that are ultimately targeted at the U.S. market*. Thus, persons involved in export promotions need to determine whether or not a focal export transaction of an SME manufacturing concern, one that would otherwise qualify as a viable outcome of a product-based export promotion, is disqualified by virtue of the establishment of a "near-sourcing" objective of the exporter.

According to personnel with the U.S. Department of Commerce, there is no readily available database that would enable an export promotions analyst to screen any given export transaction with the purpose of unequivocally establishing whether or not the export transaction had a "near-sourcing" objective. The analyst would have to communicate directly with management of the exporting concern and verbally establish whether or not the focal export transaction had a "near-sourcing" (disqualified) objective. Additionally, a query would need to be made concerning whether or not the destination of the export transaction was a NAFTA country (Mexico or Canada), since these countries also offer similar "near sourcing" supply chain benefits that are available with CAFTA-DR countries.

The method for assigning values to the associated binary variable is as follows. The necessary condition for the variable taking on a value of "1" is that the prior binary variable (concerning whether or not the exporter was an SME manufacturing concern) take on a value of "1." The sufficient condition for this latter binary variable to take on a value of "1" is that at least one SME manufacturing concern in the focal state that exported the identified 6 digit HS-coded product during the relevant time period exported the product, and that the exporter did *not* have a "near-sourcing" objective. Absent the sufficient condition, the value of this second binary variable is "0."

Having specified in Section A the method for creating each of the five segmentation variables that we intend to use in our proposed methodology, we are now in a position to present in Section B information on the databases that can be used to supply values for the five segmentation variables.

- B. Databases that can be used as sources for the creation of the five segmentation variables

1. Databases that can be used for the creation of data for the RCA and two shift-share segmentation variables

The U.S. State Export Series database, offered by South Carolina-based (U.S.) Global Trade Information Services (GTIS), provides "Origin of Movement" data regarding exported products entering into the export market, for each of the 50 states in the U.S. Exports are presented using Free Along Side (FAS) valuations at the 2-, 4- and 6-digit HS product code levels for each state. The user should note, however, that the origin of movement of an export is not necessarily the same thing as the origin of manufacture for the product (though it frequently is). According to the Census Bureau, origin of movement refers to "… the location from which exports begin their journey to the port … of exit from the United States" ("Data Notes …", 2005, p. 1)

The distinction between origin of movement and origin of manufacture is a particularly important one from the perspective of the governmentally-sponsored export promotions analyst. Using Origin of Movement data in tracking the exports of individual states in the United States can lead to either the understatement or overstatement of the exports of manufacturers of any given state. For example, understatement of a state's manufacturers' exports of a given product can result from these manufacturers' use of out-of-state export intermediaries such as Export Management Companies (EMCs). When an EMC performs as a reseller and moves the output of manufacture to a location in another state for export shipment staging purposes, the state where the staging of the export shipment takes place is credited with the export in the Origin of Movement series.

Similarly, a specified state's exports of a given product can be overstated in the Origin of Movement (OM) series of export data when the state has in it a relatively large number of reseller EMCs that handle that product and that tend to use out-of-state producers as vendors. The main implication of this discussion is that when one uses GTIS data to perform Revealed Comparative Advantage (RCA) and shift-share analyses, the results need to be evaluated from the perspective of possible problems stemming from the use of Origin of Movement (OM) export data.

- 2. Databases that can be used for the creation of data for the binary variable concerning whether or not any SME manufacturing firm in the focal state exported a designated 6-digit HS-coded product within a specified time period

To create values for this binary segmentation variable, we employ

a. PIERS, and
b. Reference USA databases.

The PIERS database is owned and maintained by Commonwealth Business Media, Inc., and maintains records of cargoes moving through ports in the United States, Latin America and Asia. The information is taken from bills of lading. For the purposes of this research, there are two key pieces of information that can be secured from the PIERS database: the name and location of the firm that is established as having exported a specified lot of product having a given FAS value and a stated 6-digit HS-coded product through an identified port, and the name and location of the importing concern in the foreign country.

Two potential problems with the use of the PIERS database in the context of this research are:

a. one cannot invariably use PIERS to determine whether the entity that is credited with the given export transaction is a manufacturing concern, and
b. even if the identity of the concern can be established as that of a manufacturer, one cannot determine from using PIERS alone whether or not the manufacturing concern is a SME.

Regarding the first problem, the concern that is identified as the "U.S. Exporter" in the PIERS database is frequently a non-manufacturing entity such as a freight forwarding concern, EMC, or a NVOCC. In such a situation, the identity of the manufacturing concern cannot be discerned from the use of the PIERS database alone. Concerning the second problem, the "Data Fields" maintained by PIERS do not address the size of the exporting concern.

We address the problem concerning the size of the manufacturing concern through the use of the Reference USA database. A key piece of information that can be secured from Reference USA and that is relevant to this research is the number of employees of the firm. An SME is defined in this article as a firm with fewer than 500 employees. Regarding the remaining problem, we can use the Reference USA database to determine the main "Line(s) of Business" of the entity credited in PIERS as the exporting concern. Particularly, we can assess the 6 digit SIC code(s) that identify the firm's line(s) of business and draw conclusions as to whether or not that firm is a manufacturing concern. For example, if a firm credited in the PIERS database as the exporter in a given transaction is identified in the Reference USA database with the 6 digit SIC code "509901" ("Exporters") as the firm's only "Line of Business," without any manufacturing SIC codes, then the firm credited with the export is seen as a non-manufacturing export intermediary. This would tend to suggest the possibility of an "Origin of Movement" problem with the data that were analyzed.

- 3. Databases that can be used to establish the existence of the export of a specific product during a specified time period by an SME manufacturing concern located in a specific state where the export was *not* made with the objective of the further fabrication of the product and/or assembly of the product into a new good, for ultimate export back into the United States

There are two databases that can be used to provide evidence that a given export transaction likely had a "near-sourcing" objective. These databases, Corporate Affiliations, supported by Lexis-Nexis Group, and Who Owns Whom, supported by Dun & Bradstreet, can be used to establish whether the exporting concern and importing concern are legally related entities. If

a. the exporter and importer are legally related entities,
b. the importer is located in either a NAFTA or CAFTA-DR country, and
c. the importer is a manufacturing concern, then there would be a significant likelihood that the export transaction had a "near-sourcing" objective.

On the other hand, even if the exporter and importer are legally related, and the importer is located in either a NAFTA or CAFTA-DR country, the export transaction would almost certainly *not* have a "near-sourcing" objective if the importer were a wholesaler or retailer, rather than a manufacturer. If the importer is a wholesaler or retailer, then this suggests that the ultimate buyer of the product is located in the NAFTA or CAFTA-DR country.

Both Corporate Affiliations and Who Owns Whom are available in hard copy form, and both databases are accessible on a pay-per-use basis using Dialog. However, Corporate Affiliations is also available with a Web version and a CD-ROM version. Corporate Affiliations is, in the United States, the most widely known source of subsidiary listings and covers 58,000 U.S. parent companies and their 70,000 subsidiaries. Also covered are 5,100 non-U.S. parents and their 52,000 subsidiaries. Who Owns Whom is the largest source of subsidiary information, covering over 310,000 parent companies and 890,000 subsidiaries. Potential reasons behind the notion that the Who Owns Whom database is the less popular of the two in the United States are that database has a European focus and lacks an on-line database version (Moss, 2004).

- B. A description of how the values of the segmentation variables are to be presented visually

Our method for graphically depicting a state's export performance concerning any 2-, 4- or 6-digit HS-coded product category involves:

a. placing the shift-share score of each product category within a state's "portfolio" of exports on the horizontal axis;
b. presenting on the vertical axis the "competitiveness" shift-share score of the focal state's exports of the relevant 2-, 4- or 6-digit HS-coded product category, in comparison with the other 49 states with respect to the relevant 2-, 4-, or 6-digit HS product code; and
c. placing the RCA score within a circle centered at the coordinates given by the two shift-share calculations, where the area of the circle is proportional to the state's exports of the product category in the most recent year (e.g., 2005).

The two binary variable values are also reflected at adjacent locations inside the circle.

- C. A note on adjusting the methodology to target either tax revenues or jobs

Up until this point, an implicit assumption has been made concerning the impact of increasing export revenues on tax revenues and jobs. The assumption is that both tax revenues and jobs *increase at the same rate* when export revenues increase by a certain amount—regardless of the mix of products involved. This means that a 10% increase in a state's export revenues is assumed to increase tax revenues by 10% and total jobs by 10% as well—regardless of whether, for example, the state's portfolio of exports emphasizes machinery or paper products. (Note: We need to alert the reader that this discussion is based upon the notion that tax revenues from exports are presumed to be a linear transformation of export sales revenues. The actual relationship is likely to differ from state to state.)

We now give evidence that this assumption is not necessarily, or even typically, correct. A key point is that export revenues per job created by exports can differ dramatically across product types. Table I presents the results of an analysis concerning export revenues per manufacturing job created by exports. The jobs figure includes both jobs from the export of manufactured products and also jobs associated with the production of parts and component materials that go into the exported manufactured products. The final column of figures presented in Table I provides evidence of dramatic differences across product categories in terms of export revenues per job created by exports.

Table I A Comparative Analysis of Export Revenues per Manufacturing Job Created by Exports as Measured Across Selected Product Categories

(1)	(2)	(3)	(4)	(5)
NAICS Code & Descr.	HS Code & Descr.	Exports (2001)	Jobs (2001)	Exports/Job

A Description of the Source of the Information and/or Data Contained in Each Column

(1) NAICS Code & Descr. - Three (3) digit North American Industry Classification System code number and description, as employed in *Statistics for Industry Groups and Industries: 2001 — Annual of Manufactures*. Washington, DC: U.S. Department of Commerce.

(2) HS Code & Descr. - 2 digit Harmonized Code (HS) as employed by GTIS, Inc., in presenting of individual states in the United States in the U.S. State Export Series database.

(3) Exports (2001) - the value of export revenues for each 2 digit HS coded product category, for year 2001, as presented by GTIS in the U.S. State Export Series database.

(4) Jobs (2001) - Source: "North Carolina: Total Jobs Supported by Manufactured Exports, 2001" of Trade & Industry Information, International Trade Administration, U.S. Department of Commerce. These job numbers correspond to the 3 digit NAICS code presented in Col. (1).

(5) Exports/Job - This figure is equal to the product category's Total Export figure presented in Col. (3) divided by the product category's jobs figure presented in Col. (4).

NAICS Code & Descr.	HS Code & Descr.	Exports (2001)	Jobs (2001)	Exports/Job
315 Apparel			5,600	
	61 Knit apparel	$762,000,000		
	62 Woven apparel	$159,000,000		
	Total Apparel exports	$921,000,000		
				$164,464
321 Wood			2,800	
	44 Wood	$132,000,000		
	Total Wood exports	$132,000,000		
				$47,143
322 Paper			5,900	
	47 Woodpulp etc.	$250,000,000		
	48 Paper/paperboard	$165,000,000		
Total Paper exports	$415,000,000			
				$70,339
326 Plastic & Rubber			7,400	
	39 Plastic	$527,000,000		
	40 Rubber	$228,000,000		
	Total Plastic & Rubber Exports	$755,000,000		
				$102,027

Table I A Comparative Analysis of Export Revenues per Manufacturing Job Created by Exports as Measured Across Selected Product Categories

(1) NAICS Code & Descr.	(2) HS Code & Descr.	(3) Exports (2001)	(4) Jobs (2001)	(5) Exports/Job
333 Machinery			9,500	
	84 Machinery	$2,121,000,000		
	Total Machinery Exports	$2,121,000,000		
				$223,263
336 Transportation Equipment			5,100	
	86 Railway	$8,000,000		
	87 Vehicles, not Railway	$483,000,000		
	88 Aircraft, Spacecraft	$155,000,000		
	89 Ships & Boats	$15,000,000		
	Total Transportation Exports	$661,000,000		
				$129,608

The six product categories were not chosen at random. Rather, they were chosen based upon our ability to eliminate any discrepancies that might otherwise have arisen when one evaluates export revenue and job-related data taken from two different sources, each using a different product classification system. GTIS, the source of export revenues, uses the Harmonized Code (HS) system, and the Office of Trade & Industry Information, the source of jobs created by exports, uses the North American Industry Classification System (NAICS). For each of the six 3-digit NAICS-coded product categories addressed in Table I, North Carolina exports for the year 2001 are completely expressed in terms of exports from one or more discrete and identified 2-digit HS-coded product categories. Furthermore, each of the identified 2-digit HS product categories is such that the identified HS category is clearly and unequivocally contained within the focal NAICS code, with no "spillover" into other NAICS codes. (Note: The 2001 data supplied by the Office of Trade & Industry Information are the latest such data that are available.)

The importance of this discussion from the perspective of the export promotions analyst is clear: the analyst needs to use different variables when targeting jobs than when focusing on tax revenues. Particularly, when the analyst is targeting jobs, both the "portfolio" variable and also the variable used to determine the size of the "bubble" need to be re-specified. When re-creating the "bubble" variable, export revenues of each specific product category for the identified year (e.g., 2001) need to be transformed into an associated jobs figure, using the services of the Office of Trade & Industry Information. Similarly, when re-creating the "portfolio" variable, the analyst needs to use the services of the Office of Trade & Industry Information to determine the total number of export-related jobs created (lost) for each product category over the specified time period.

Total jobs supported by manufactured exports in 2001 in the State of North Carolina and alluded to in Table I do not include jobs in the service sector. Such service jobs include "Business Services," "Transportation Services," "Wholesale & Retail Trade Services," and "Other Nonmanufacturing Sectors." In the State of North Carolina, these jobs, totaling 283,800 in the year 2001, exceed "Total Jobs from Manufacturing Exports" in 2001, which equal 139,600 jobs ("North Carolina: Total jobs supported …", 2001).

However, we do not address the service jobs, for two reasons. First, there is no economical method available to us for inferring the quantity of service jobs created from exports of goods in each 3-digit NAICS product category. Second, we feel that governmentally-sponsored export promotional overtures targeted at managers

and/or owners of these infrastructurally-related companies would not generate results that could be quantified and validated from the point of view of causality.

IV. APPLICATION OF THE METHODOLOGY IN THE CONTEXT OF PRODUCT-BASED GOVERNMENTAL EXPORT PROMOTIONS FOR AN INDIVIDUAL STATE (NORTH CAROLINA)

We present the results of an application of the segmentation methodology in the context of exports of the state of North Carolina. Analyses are performed at the 2-, 4-, and 6-digit HS coded product category levels, with the results being presented in Figures 1, 2, and 3, respectively. A discussion of the results is given for each of the three levels of analyses. The time period that is used for the two types of shift-share analyses is the 2003-2005 time period. Revealed Comparative Advantage (RCA) analyses involve the use of export data for the year 2005. Export revenues for the year 2005 are used to establish the size of the "bubble" for each product category.
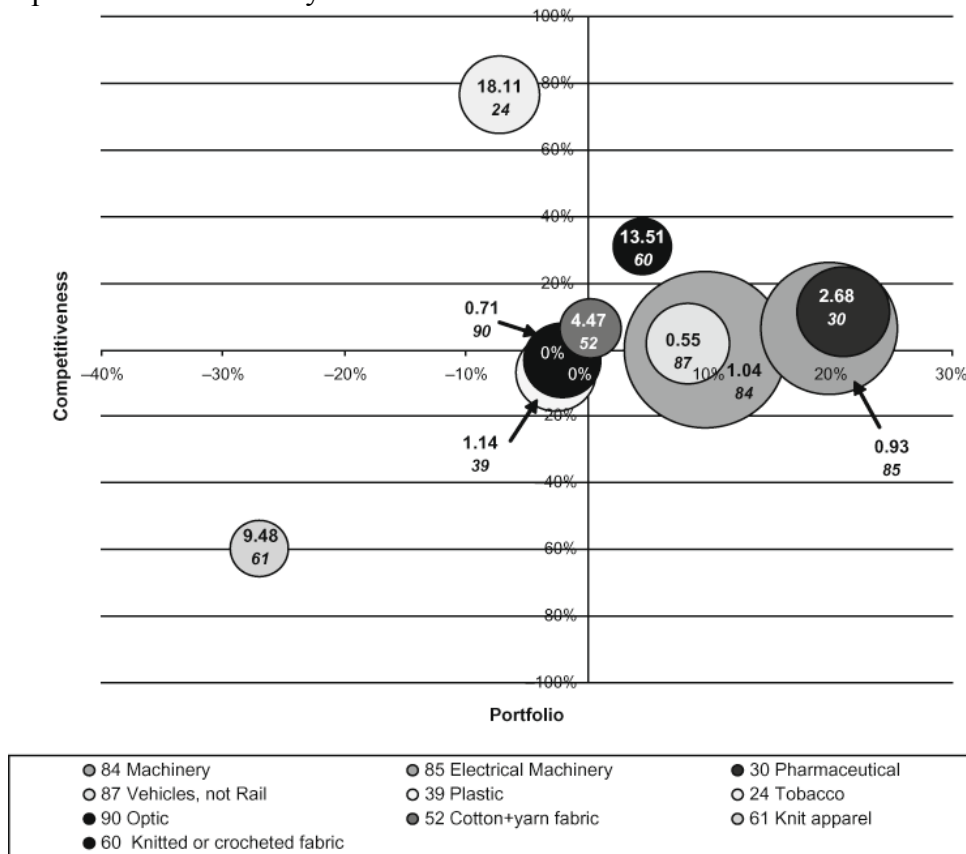

Figure 1 A Depiction of the Results of "Revealed Comparative Advantage," "Portfolio" and "Competitiveness" Shift-Share Analyses of North Carolina's Ten Largest 2-Digit HS Coded Segments, as Measured by Export Revenues for the Year 2005

Revealed Comparative Advantage (RCA): is a measure of the preponderance of a given state's (e.g., North Carolina's) exports of a specified product (e.g., HS 60) in that state's overall portfolio of exports in a given year (e.g., 2005), in comparison with the preponderance of exports of that specific product by all exporters of the product in the United States as a whole, in comparison with the U.S.'s overall exports in that given year (e.g., 2005). [Note: The overall exports of the U.S. includes not only the 50 states but also U.S. territories and possessions.]

Portfolio: relates to the percentage net shift that a focal product (e.g., HS 60) experiences in the export portfolio of a given state (e.g., North Carolina) over a specified time period (e.g., 2003-2005), in comparison with the percentage net shift of other comparable products in that state's portfolio over that time period.

Competitiveness: relates to the percentage net shift that the focal state (e.g., North Carolina) experiences concerning the export of the focal product (e.g., HS 60) over a specified time period (e.g., 2003-2005), in comparison with the exports of that product by each of the other 49 U.S. states, as well as U.S. territories and possessions, over that same time period.

Area of Circle: is directly proportional to the state's (e.g., North Carolina's) export revenues concerning the specific product (e.g., HS 60) in a specified year (e.g., 2005).
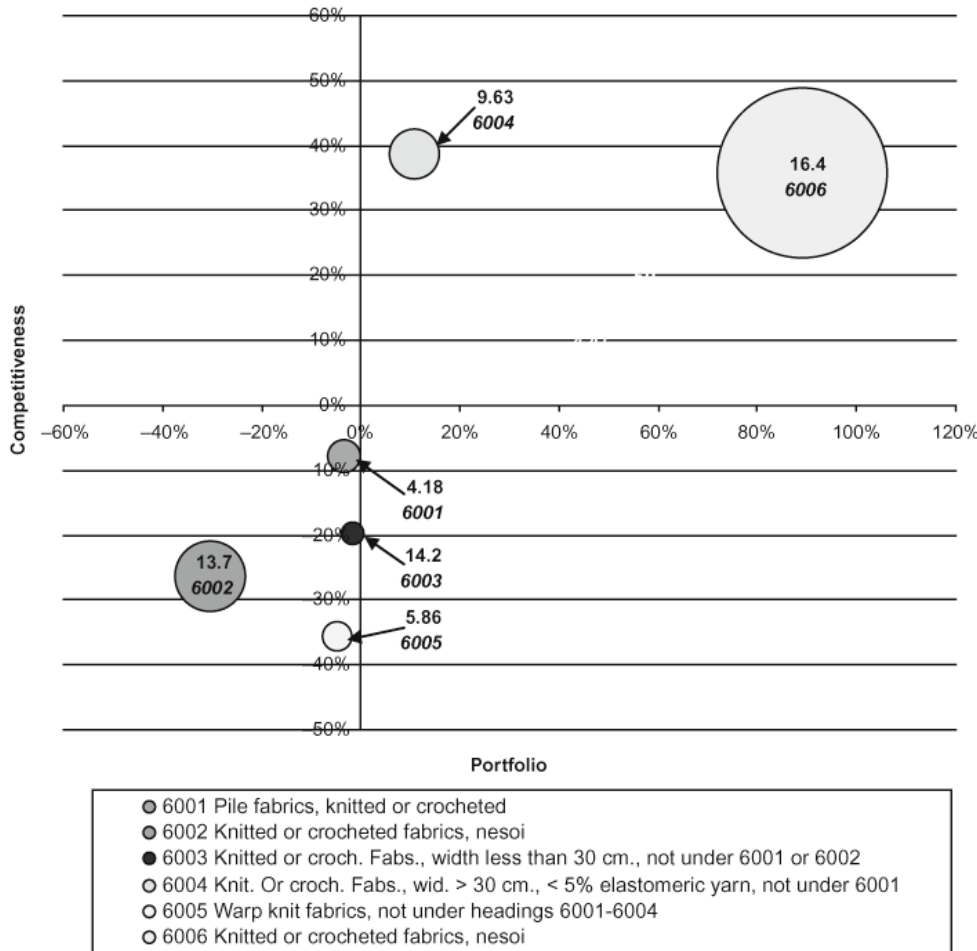

Figure 2 A Depiction of the Results of "Revealed Comparative Advantage," "Portfolio," and "Competitiveness" Shift-Share Analyses of North Carolina's Exports with Respect to the 4-Digit HS Coded Segments of the HS 60 Category: "Knitted or Crocheted Fabrics"

Revealed Comparative Advantage (RCA): is a measure of the preponderance of a given state's (e.g., North Carolina's) exports of a specified product (e.g., HS 60) in that state's overall portfolio of exports in a given year (e.g., 2005), in comparison with the preponderance of exports of that specific product by all exporters of the product in the United States as a whole, in comparison with the U.S.'s overall exports in that given year (e.g., 2005). [Note: The overall exports of the U.S. include not only the 50 states but also U.S. territories and possessions.]

Portfolio: relates to the percentage net shift that a focal product (e.g., HS 60) experiences in the export portfolio of a given state (e.g., North Carolina) over a specified time period (e.g., 2003-2005), in comparison with the percentage net shift of other comparable products in that state's portfolio over that time period.

Competitiveness: relates to the percentage net shift that the focal state (e.g., North Carolina) experiences concerning the export of the focal product (e.g., HS 60) over a specified time period (e.g., 2003-2005), in comparison with the exports of that product by each of the other 49 U.S. states, as well as U.S. territories and possessions, over that same time period.

Area of Circle: is directly proportional to the state's (e.g., North Carolina's) export revenues concerning the specific product (e.g., HS 60) in a specified year (e.g., 2005).
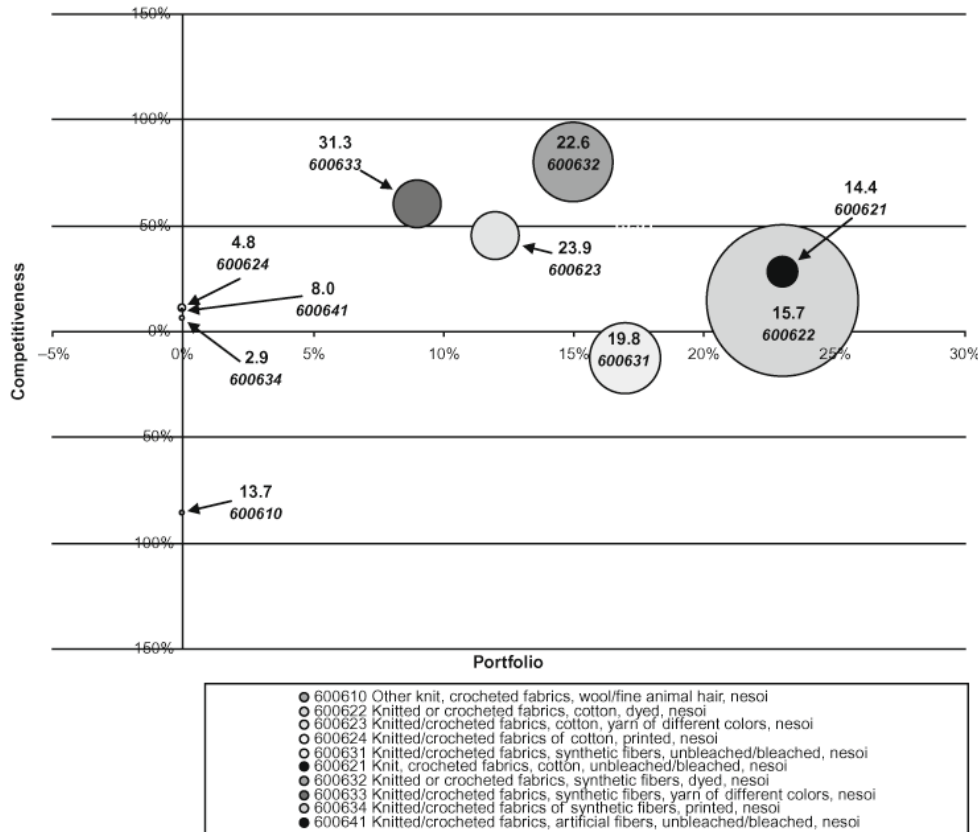

Figure 3 A Depiction of the Results of "Revealed Comparative Advantage," "Portfolio," and "Competitiveness" Shift-Share Analyses of North Carolina's Exports with Respect to the Ten Largest (by 2005 Export Revenues) 6-Digit HS Coded Segments of the HS 6006 Category: "Knitted or Crocheted Fabrics, Nesoi"

Revealed Comparative Advantage (RCA): is a measure of the preponderance of a given state's (e.g., North Carolina's) exports of a specified product (e.g., HS 60) in that state's overall portfolio of exports in a given year (e.g., 2005), in comparison with the preponderance of exports of that specific product by all exporters of the product in the U.S. as a whole, in comparison with the United State's overall exports in that given year (e.g., 2005). [Note: The overall exports of the U.S. include not only the 50 states but also U.S. territories and possessions.].

Portfolio: relates to the percentage net shift that a focal product (e.g., HS 60) experiences in the export portfolio of a given state (e.g., North Carolina) over a specified time period (e.g., 2003-2005), in comparison with the percentage net shift of other comparable products in that state's portfolio over that time period.

Competitiveness: relates to the percentage net shift that the focal state (e.g., North Carolina) experiences concerning the export of the focal product (e.g., HS 60) over a specified time period (e.g., 2003-2005), in comparison with the exports of that product by each of the other 49 U.S. states, as well as U.S. territories and possessions, over that same time period.

Area of Circle: is directly proportional to the state's (e.g., North Carolina's) export revenues concerning the specific product (e.g., HS 60) in a specified year (e.g., 2005).

A. A presentation and discussion of the results of the analyses performed at the two digit HS-coded product category level

Given in Figure 1 is a presentation of the results of the analyses for the ten largest (by export revenue dollars for the year 2005) 2-digit HS-coded product groups for the state of North Carolina. Results for the other 87 2-digit categories are suppressed, for the sake of simplicity and clarity of presentation. Additionally, the remaining 87 2-digit categories as a group lost share in the overall North Carolina export portfolio over the 2003-2005 time period and are thus less attractive from the point of view of entities that might be targeted in funding governmentally sponsored export promotions.

The two 2-digit HS-coded product categories that are the largest in terms of the size of their 2005 export revenue dollars, HS 84 (machinery) and HS 85 (electrical machinery), are also very large gainers of share in North Carolina's overall export portfolio over the 2003-2005 time period. As such, they would appear to be viable candidates for governmentally sponsored and product-based export promotional activities.

However, their modest performances in the Revealed Comparative Advantage (RCA) analysis would likely send up red flags in the eyes of World Trade Organization personnel who are responsible for ensuring that governmentally-sponsored export promotions do not distort trade. Such persons would likely want to see an RCA score well in excess of one (1.0) as a prerequisite for selecting a product category to receive a state's export promotional resources.

The HS 60 product category (knitted or crocheted fabrics) appears to have much greater appeal as a target for governmentally-sponsored export promotions. The RCA score of 13.51 should be acceptable in the eyes of any WTO official who might be responsible for evaluating such promotions.

Also, North Carolina's gain in share of the overall U.S. export market for HS 60 products would tend to render favorable impressions to North Carolina-based non-exporting manufacturing SME managements regarding their perceptions of their companies' likely competitiveness in the U.S. export market for HS 60 products. In a similar vein, North Carolina exports of HS 60 products gained share nicely in North Carolina's overall portfolio of exports.

It is enlightening to address the meaning and implications of the results for the HS 24 (tobacco) and HS 61 (knit apparel) product categories. North Carolina exports of HS 24 products are very impressive in both measures of competitiveness. However, the loss of share in North Carolina's overall export portfolio appears to imply that *all* U.S. exporters of HS 24 products are part of a "sunset" industry, thus rendering this product category to be generally less than adequately desirable for the purpose of governmentally-sponsored export promotions.

The results for HS 61 (knit apparel) are particularly useful in highlighting the benefits associated with the employment of the methodology presented in this paper. At first blush, the relatively high RCA figure of 9.48 would appear to provide strong support for targeting non-exporting North Carolina-based SME producers of knit apparel (HS 61) products with a governmentally sponsored export promotion.

However, the results of the two shift-share analyses tell a materially different story. The very negative outcome of the "competitiveness" shift-share analysis for North Carolina producers of knit apparel products suggests that

knit apparel producers in other states in the United States are, at the margin, doing a better job of satisfying demand in the overall U.S. export market for HS 61 products than are NC producers of knit apparel. And the extensive loss of share of exports of HS 61 products in the overall North Carolina portfolio of exports suggests that, for whatever the reason, prospects for future tax enhancement and job creation for North Carolina due to North Carolina HS 61 exports are not rosy.

In Section B, we begin the process of dissecting the 2-digit HS 60 product category, so as to better understand the sub-categories of HS 60 that have particularly good potential from the perspective of their possibly being the subjects of future governmentally-sponsored export promotions. Section B addresses market segmentation issues at the level of 4 digit HS components of the HS 60 product category.

- B. A discussion of the results of the analyses performed using the four digit HS-coded product categories that collectively constitute the HS 60 product category

Figure 2 gives the results of the analyses of the 4 digit HS product categories that collectively constitute the HS 60 product category. Prior to addressing substantive features of Figure 2, it is useful to clarify precisely the nature of the "portfolio" variable that is employed in the figure, and how the RCA figures are calculated. The portfolio variable used in Figure 2 is the same portfolio variable used in Figure 1. The 4 digit HS components of HS 60 are assessed in the original "space" of Figure 1 and are not in any way "re-centered." Only the sizes of the circles have been rescaled, so as to enhance visual evaluation of the figure. Similarly, the RCA figures of the 4 digit HS components of HS 60 are created using the overall North Carolina portfolio as the basis for comparison. Essentially, Figure 2 is created by starting with Figure 1, deleting HS 60 from the figure and replacing HS 60 in Figure 1 with its 4 digit HS components, and then removing all of the other 2 digit HS categories from the figure.

Perhaps the most striking feature of Figure 2 concerns the notion that HS 6006 appears to be the overwhelming winner on all relevant dimensions. In contrast, HS 6002 would appear to be a category that the governmental trade promotions analyst would want to avoid (looking beyond the otherwise high RCA measure of 13.7). However, a close inspection of the product category descriptions of HS 6002 and HS 6006 will show that *their verbal descriptions are identical*: "Knitted or crocheted fabrics, nesoi." Clearly, an inspection of the 6 digit HS component categories of each of HS 6002 and HS 6006 would appear to be in order, so as to enable us to derive a de facto contrast of the two 4-digit HS categories not otherwise available from their verbal descriptions presented in the GTIS database.

Product category HS 6002 has 13 separate 6-digit HS product categories. However, only two of the 13 6-digit HS product categories have non-zero export revenues reflected in the GTIS database: HS 600240 and HS 600290. In contrast, 10 of the 14 separate 6-digit HS product categories that collectively constitute the HS 6006 product category have non-zero export revenues that are reflected in the GTIS database and that can be further analyzed at the 6-digit HS product category level. Further evaluation of the product descriptions of each 6-digit HS product category component of each of HS 6002 and HS 6006 indicates a key distinction between HS 6002 and HS 6006: Both of the HS 600240 and HS 600290 categories deal with fabrics that incorporate "elastomeric" yarns that are greater than 5% of the total weight of all yarns in the fabric. In contrast, not one of the 6 digit component categories of HS 6006 concerns fabrics with elastomeric yarn content at the 5% level or greater, by weight.

Thus, we identify the main de facto discriminating feature between two 4-digit HS categories (HS 6002 and HS 6006) that otherwise have the same verbal description as assigned by GTIS: HS 6002 fabrics have relatively high elastomeric yarn content (more than 5% by weight) and HS 6006 fabrics have relatively low elastomeric yarn content. The results strongly suggest that any governmentally sponsored export promotion that is targeted at North Carolina producers of "knitted or crocheted fabrics, nesoi" should avoid producers of fabrics that are relatively high in elastomeric yarn content (more than 5% by weight).

In the next section of this article, we evaluate the 6-digit HS components of the HS 6006 product category, knowing that there are no product category construct validity problems that might otherwise be suggested by the duplication of product category descriptions given in the GTIS database for HS 6002 and HS 6006.

- C. A discussion of the results of the analyses performed at the 6-digit HS product category levels that collectively comprise the HS 6006 product category

Similar to the situation presented in Figure 2, the vertical and horizontal coordinates of each circle in Figure 3 would be the same if they were placed in the "space" of Figure 1. Only the sizes of the circles have been rescaled for better visual evaluation purposes. Unlike the situation presented in Figure 2, there is no single 6-digit HS "star" product category that dominates in all of the major measurement dimensions. North Carolina exporters of HS 600621, 600622, 600623, 600632, and 600633 products have generated superior export performances on the three main evaluation variables. Management of any North Carolina-based non-exporting SME that manufactures products falling under any one or more of these five 6-digit HS categories should be persuaded by these results that their own firm's prospects for competing in the relevant U.S. export product market are bright.

We have omitted the completion of the final two steps. A compelling reason is that we are hesitant identify in this public forum two real-world parties who are operating in the private competitive domain and who may have an on-going "real world" business relationship that is significantly valued by both parties. The identification of this relationship might tend to do damage to the interests of one of the parties—likely the exporter—if such identification causes one or more other parties to successfully compete for the business of the importer, thus potentially excluding the exporter in the future as a vendor for the importer.

The omission of these two steps does not appear to leave the reader at any conceptual disadvantage. The performance of the two steps is not complex with regard to data measurement or analysis. The outcome of each of the two steps is just the recognition of whether each of several conditions holds, yielding binary value outcomes (0 or 1) in each case.

V. SUMMARY

This article presented and applied in an example a methodology for identifying product categories that offer promise in the domain of governmentally-sponsored export promotions for satisfying the needs of three key stakeholder groups: the World Trade Organization (WTO), managements of non-exporting SME manufacturing concerns, and governmental entities who are responsible for funding these promotions. Following a brief introduction and description of the relevant needs of members of each stakeholder group was a presentation of the five main segmentation variables that form the backbone of the proposed methodology. Issues addressed include how the variables are formulated, what data sources are used to supply values for the variables, and how the variable values are to be visually presented. An important aspect of the methodology concerns the option of the export promotions analyst to specify either tax revenues or jobs as the main objective of such promotions.

REFERENCES

- 1. Balassa, B. (1965) Trade Liberalization and "Revealed" Comparative Advantage. *Manchester School of Economics and Social Studies* 33 , pp. 99-124.
- 2. Buckley, P. J. , Pass, C. L. and Prescott, K. (1988) Measures of International Competitiveness. *Journal of Marketing Management* 4:2 , pp. 175-200.
- 3. Carrier, C. (July 1999) The Training and Development of Needs of Owner-Managers of Small Businesses with Export Potential. *Journal of Small Business Management* pp. 30-41.

- 4. Cavusgil, S. T. (1980) On the Internationalization Process of Firms. *European Research* 8:6 , pp. 273-281.
- 5. Conlan, T. J. and Sager, M. A. (2001) The Growing International Activities of the American States. *Policy Studies Review* 18:3 , pp. 13-28.
- 6. Coughlin, C. C. and Pollard, P. S. (2001) Comparing Manufacturing Growth Rates Across States: What Accounts for the Differences?. *Review—Federal Reserve Bank of St. Louis* 83:1 , pp. 25-40.
- 7. Crick, D. (1997) U. K. SMEs' Awareness, Use, and Perceptions of Selected Governmental Export Assistance Programs: An Investigation into the Effect of the Internationalization Process. *The International Trade Journal* 11:1 , pp. 135-167.
- 8. Czinkota, M. R. (2002) Export Promotion: A Framework for Finding Opportunity in Change. *Thunderbird International Business Review* 44:3 , pp. 315-321.
- 9. Czinkota, M. R. and Ronkainen, I. (2003) Have Lunch or Be Lunch. *Marketing Management* pp. 48-50. — March/April
- 10. Czinkota, M. R. and Wongtada, N. (1997) The Effect of Export Promotion on U.S. Trade Performance: An Analysis of Industry Internationalization. *The International Trade Journal* 11:1 , pp. 5-37.
- 11. Data Notes on the Origin of Movement (OM) Series (2005) Bureau of the Census , Washington, DC
- 12. Davis, L. A. (1989) *Contribution of Exports to U.S. Employment: 1980-1987* U.S. Government Printing Office , Washington, DC
- 13. Diamantopoulos, A. , Schlegelmilch, B. B. and Tse, K. Y. K. (1993) Understanding the Role of Export Marketing Assistance: Empirical Evidence and Research Needs. *European Journal of Marketing* 27:4 , pp. 5-18.
- 14. Egger, P. and Url, T. (2006) Public Export Credit Guarantees and Foreign Trade Structure: Evidence from Austria. *World Economy* 29:4 , pp. 399-418.
- 15. Friedman, M. (2005) Telephone interview, September.
- 16. Gorg, H. , Henry, M. and Strobl, E. (2007) Grant Support and Exporting Activity. CEPR , London — CEPR Discussion Paper Series, No. 6054
- 17. Green, R. T. and Allaway, A. W. (1985) Identification of Export Opportunities Using the Shift-Share Approach. *Journal of Marketing* 49 , pp. 83-88. — Winter
- 18. Hibbert, E. (1998) Evaluating Government Export Promotion: some Conceptual and Empirical Approaches. *The International Trade Journal* 12:4 , pp. 465-483.
- 19. Laird, S. (1999) Export Policy and the WTO. *The Journal of International Trade and Economic Development* 8:1 , pp. 73-88.
- 20. Lederman, D. , Olarreaga, M. and Payton, L. (2006) Export Promotion Agencies: What Works and What Doesn't. CEPR , London — CEPR Discussion Paper Series No. 5810
- 21. Mahone, C. E. (1995) A Comparative Analysis of the Differences in Perceived Obstacles to Exporting by Small- and Medium-Sized Manufacturers and Traders. *The International Trade Journal* 9:3 , pp. 315-332.
- 22. McAuley, A. (1993) The Perceived Usefulness of Export Information Sources. *European Journal of Marketing* 27:10 , pp. 52-64.
- 23. McCurdy, K. (2003) *Small and Medium-Sized Exporting Companies: A Statistical Handbook* International Trade Administration, Trade Development, Office of Trade and Economic Analysis , Washington, DC
- 24. Moss, R. (2004) *Strauss's Handbook of Business Information: A Guide for Librarians, Students and Researchers* Second, Libraries Unlimited , Westport, CT
- 25. New Challenges for Trade Promotion: Export Strategies for Small Firms (1999) *International Trade Forum* 1 , pp. 9-12.
- 26. North Carolina: Total Jobs Supported by Manufactured Exports (2001) Office of Trade and Industry Information, International Trade Administration, U.S. Department of Commerce , Washington, DC
- 27. Richardson, M. (1990) Anti-Trust Effects of Export Promotion. *The International Trade Journal* 4:4 , pp. 391-400.

- 28. Samli, A. C. and Donaldson, J. D. (1997) Developing Strategic Alliances for Export Stimulation: A New Challenge for Local Administrations. *The International Trade Journal* 11:1 , pp. 115-134.
- 29. Seringhaus, F. H. R. (1986) The Impact of Government Export Marketing Assistance. *International Marketing Review* 3:2 , pp. 55-66.
- 30. Shaw, R. G. (1977) *Commerce and State Department's Export Promotion Programs* U.S. Government Printing Office , Washington, DC
- 31. Shelburne, R. C. (1997) Government Export Promotion Expenditures: Some Cost Estimates and Practical Considerations. *The International Trade Journal* 11:1 , pp. 69-83.
- 32. Shister, N. (2008) Near-Sourcing. *World Trade* 40 , p. 42. — January
- 33. Wade, R. H. (2003) What Strategies Are Viable for Developing Countries Today? The World Trade Organization and the Shrinking of "Development Space.". *Review of International Political Economy* 10:4 , pp. 621-644.
- 34. Webster, A. (1991) Some Issues in the Measurement of Comparative Advantage. *Applied Economics* 23 , pp. 937-948.
- 35. Wilson, P. (2000) The Export Competitiveness of Dynamic Asian Economies. *Journal of Economic Studies* 27:6 , pp. 541-569.
- 36. World Conference of Trade Promotion Organizations (1998) Adapting to a Changing Global Economy. *International Trade Forum* 3 , pp. 26-27.
- 37. Zacharakis, A. L. and Eshghi, G. (1997) Government's Role in Exporting by Entrepreneurial Organizations: An Agency Perspective. *The International Trade Journal* 11:1 , pp. 85-111.