

NIST GCR 11-935

**Economic Impact of U.S. and Brazil Inquiry Point
Information Services Under the World Trade
Organization's Agreement on Technical
Barriers to Trade (WTO TBT):
Exploratory Investigation
and Development of an
Analytical Approach**

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Notice

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Under the World Trade Organization's
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Exploratory Investigation and
Development of an Analytical Approach**

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EXECUTIVE SUMMARY

The assessment of economic benefits from U.S. and Brazilian WTO TBT Inquiry Point information services was designed in two phases. During the first (current) phase, the objective was to (1) conduct an exploratory investigation and (2) devise a transparent and practical methodology for estimating the economic impact of WTO TBT Inquiry Point services. Analysis would assess the economic impact of changing technical requirements with WTO TBT Inquiry Point information services in place compared to a counterfactual scenario without WTO TBT Inquiry Point information services.

The results of the exploratory investigation – based on a limited number of interviews with U.S. companies, U.S. industry associations, and Brazilian companies – point to potentially significant economic benefits for U.S. and Brazilian exporters and for the U.S. and Brazilian economies. These benefits include:

- Direct cost savings from not hiring commercial information providers - cost savings ranging from \$50,000 to \$100,000 per company per year (for U.S. exporters) and from \$40,000 to \$60,000 per company per year (for Brazilian exporters)
- Reducing exporting risks and avoiding exporting mistakes through access to up-to-date and reliable information about product technical requirements. The avoided consequences of exporting mistakes include delayed customs clearance, customs fines and penalties, the need for expedited (and therefore more costly) engineering changes, and reshipments.
- Avoiding exporting mistakes can have economic benefits equivalent to increasing export volumes by as much as one to two percentage points. Depending on companies' annual export volumes, this benefit can range from
 - \$10,000 to \$20,000 per company per year (with export volumes of \$1 million)
 - \$100,000 to \$200,000 per company per year (with export volumes of \$10 million)
 - \$5 million to \$10 million per company per year (for large exporters with export volumes of \$500 million per year).

If these results were representative of the entire population of NOTIFY U.S. and Alerta Exportador users and could be extended to all NOTIFY U.S. and Alerta Exportador users, the economic benefits from avoiding export mistakes due to the availability of U.S. and Brazilian WTP TBT Inquiry Point information services could be substantial.

In addition to estimating preliminary economic benefits, the current study also identified an analytical approach for building a general model that could be used to estimate economic benefit from inquiry point information services in a practical, transparent, and rigorous manner.

The analytical approach is a micro-economic model where economic benefits are expressed as linear equations with terms including the avoided direct exporting costs, the avoided costs of exporting mistakes, and opportunities for additional export volumes, i.e., increased market shares. To validate and / or expand the terms of the linear equations and to estimate coefficients for each term, additional discovery will be required to generate a sufficient number of “data points” to warrant generalizations about the economic benefits to exporting companies and to exporting economies.

Recognizing that economic analysis is subject to many uncertainties, linear equations should be used to generate range estimates rather than point estimates of economic benefits.

OBJECTIVES AND SCOPE

The assessment of economic benefits from information services provided by U.S. and Brazilian WTO TBT Inquiry Points will be completed in two phases.

- During Phase I (current assignment), the objective was to identify an appropriate analytical approach and methodology for estimating the economic impact of WTO TBT Inquiry Point information services in a transparent and rigorous manner.

- During a possible (future) Phase II effort, the assessment of economic impact from WTO TBT Inquiry Point information services will be completed by implementing the proposed methodology identified in Phase I.

WTO TBT INQUIRY POINT SERVICES

Export markets are subject to a complex maze of standards and technical regulations. These technical requirements are constantly changing and the absence of timely and accurate information about standards, regulations, conformity assessment procedures and compliance requirements can potentially impact the profitability of companies' export programs and the viability of those export programs.

WTO TBT Inquiry Point services were established in the U.S. and in Brazil, as well as in other signatories to the World Trade Organization's Agreement on Technical Barriers to Trade, to track and disseminate information about changing technical requirements in order to reduce potential non-tariff barriers to global trade.

U.S. WTO TBT INQUIRY POINT INFORMATION SERVICES

To facilitate U.S. exports as well as U.S. imports (i.e., to facilitate free trade as specified in various international agreements), the National Center for Standards and Certification Information (NCSCI) at the National Institute of Standards and Technology (NIST) provides timely and accurate information about standards, regulations, conformity assessment and other requirements that could become technical barriers to trade.

In this role, NCSCI is the U.S. Inquiry Point for the World Trade Organization's Agreement on Technical Barriers to Trade (WTO – TBT), for the North American Free Trade Agreement (NAFTA), and for the International Organization for Standards Information Network (ISONET).

To assist U.S. exporters and importers navigate the complex maze of (1) U.S. standards and technical regulations, (2) the standards and technical regulations of other nations, as well as (3) regional and international standards, NCSCI and the Standards Information Center at NIST provide the following information services:

- Daily tracking of proposed technical regulations issued by the U.S. Federal government, the 50 U.S. State governments, and the District of Columbia via a commercial database, and the other 152 Member countries of the World Trade Organization via WTO TBT notifications
- NOTIFY U.S., a customized, Internet-based resource for U.S. industry and business to track changing technical regulations for manufactured products worldwide.
- In its role as the U.S. Federal standards information center, NCSCI (1) has access to over one million industry, national, regional, and international standards for imports and exports, standards organizations, experts, and publications and (2) responds to specific inquiries about standards-related measures (full texts of standards, U.S. military specifications, and U.S. Federal procurement standards).

During calendar year 2010, NCSCI provided WTO TBT Inquiry Point services at the following levels:

- 38,000+ standards and technical regulations and export issues through NOTIFY U.S. to approximately 3,500 subscribers
- 2500+ responses to specific standards-related information inquiries via other channels.

BRAZIL WTO TBT INQUIRY POINT INFORMATION SERVICES

INMETRO (the National Institute of Metrology, Standardization and Industrial Quality) is the national institute in Brazil responsible for industrial and scientific metrology, legal metrology, accreditation, conformity assessment. Another important function of INMETRO is to act as the Brazilian Inquiry Point for the World Trade Organization Agreement on Technical Barriers to Trade (WTO – TBT).

To facilitate Brazilian exports as well as imports (i.e., to facilitate free trade as specified in various international agreements), INMETRO provides timely and accurate information about technical requirements (standards, regulations, conformity assessment and other requirements that could become technical barriers to trade for companies and public sector entities) and supports the Brazilian government in international negotiations on technical barriers to trade.

To assist Brazilian exporters and importers navigate the complex maze of (1) Brazilian standards and technical regulations, (2) the standards and technical regulations of other nations, as well as

(3) regional and international standards, the Brazilian Inquiry Point at INMETRO provides the following information services:

- Daily tracking of proposed technical regulations issued by the Brazilian Federal government, the 26 Brazilian State governments, the Federal District (Distrito Federal), and the other 152 Member countries of the World Trade Organization
- Alerta Exportador (Exporter Alerts), a customized, Internet-based resource for Brazilian industry and business to track changing technical regulations for products worldwide.
- Other services, including
 - Answering specific requests about Brazilian technical requirements for foreign Enquiry Points, public institutions and companies and also requests about foreign technical requirements for domestic companies;
 - Providing studies about technical requirements together with other Brazilian institutions that are made available for domestic companies, especially small and medium size companies;
 - Making available a data base of inquiries already answered about many countries,
 - Offering a system for searching the notifications issued by the WTO member countries,
 - Providing required full texts of foreign regulations,
 - Opening a channel for resolving possible technical barriers that domestic companies may be facing in foreign markets
 - Providing international technical cooperation with other Inquiry Points in developing countries,
 - Participating in the international trade negotiations of Brazil when there is a specific chapter about technical barriers or technical requirements.
 - Participating in many events with the domestic private sector to increase knowledge about technical barriers to trade and to improve the partnership between the companies and the government.

During calendar year 2010, INMETRO provided WTO TBT Inquiry Point services at the following levels:

- 1900+ standards and technical regulations export issues through Alerta Exportador to 10,500 + subscribers
- 200 + responses to specific standards-related information inquiries

RESULTS OF PRELIMINARY MINI-STUDIES

Preliminary analysis (based on interviews with four U.S. companies and two U.S. industry associations as well as on interviews with five Brazilian companies) indicates that NIST and INMETRO TBT Inquiry Point services generate significant economic benefits for U.S. and Brazilian exporters and the U.S. and Brazilian economies, including:

- Direct cost savings
- Reducing exporting risks and avoiding exporting mistakes
- Increasing export levels

Companies were selected for preliminary analysis so as to include large and small companies as well as companies active in different industries. Interviews were conducted in the January to February 2011 timeframe.

Before these preliminary findings about benefits from NIST and INMETRO WTO TBT Inquiry Point services for U.S. and Brazil trade flows can be generalized, additional discovery should be conducted to increase the number of “data points” and to differentiate among companies by size and capability as well as by export market challenges.

MINI-STUDIES OF U.S. INQUIRY POINT SERVICES

COMPANY #1
U.S. Heavy Equipment Industry

Company Information

The Engine Division of a U.S. headquartered multinational company with:

- Almost \$50 billion in 2010 revenues
- Approximately \$25 billion in 2010 worldwide exports
- Over \$2 billion in 2010 Engine Division exports to Latin America. Of this amount, over \$1 billion of exports went to Brazil.

The company's Brazil export program has been active for several decades and the company claims to be well-connected in Brazil through its network of local dealers and other channels. The company indicated that this would be typical for other U.S. multinationals well-established in key export markets.

Utilization of Inquiry Point Services

In the context of exporting to new markets (e.g., Asia and Africa), the Brazilian market is not considered particularly challenging. At the same time, from a technical and regulatory point of view, the "Brazilian market is considered to be very active."

While the company is well-connected in the Brazilian market, "people are busy and could overlook impending regulatory and technical changes that could significantly impact technical requirements for the company's export products." To avoid "being caught flat-footed about impending regulatory changes," the company uses the NOTIFY U.S. Inquiry Point service as an important early warning signal.

"NOTIFY U.S. works well in identifying new technical changes that the company is not yet aware of, as well as elaborating and validating technical changes that the company might be hearing about, in general terms."

In the absence of the NOTIFY U.S. service, the company would incur additional expenses conservatively estimated at \$60,000 to \$100,000 per year, including salary, overhead, and travel expenses. These avoided cost estimates were derived from the company's recent experience in the Russian export market which reportedly does not provide consistently high quality technical information for distribution by inquiry point notification systems.

For large multinational corporations, the \$60,000 to \$100,000 avoided annual cost could be considered negligible. At the same time, WTO obligations are fulfilled by country to country relationships and private company employees or commercial service providers to the company are not likely to have the same level of timely or comprehensive information access as the U.S.

WTO TBT Inquiry Point. Thus, even incurring additional costs may not effectively replace the value provided by the NOTIFY U.S. information service.

If timely and accurate information about regulatory and technical changes are not obtained, the company can incur penalties that are much more significant than incremental avoided costs. These more important penalties would result from “making costly exporting mistakes,” such as:

- Delays in clearing customs
- Fines at customs
- Possible return shipments (with time-consuming engineering changes and reshipments)
- Lost sales

The “aggregate economic impact of these export mistakes could easily be one percent or more of total export volumes”. Given that the Engine Division ships over \$1 billion of exports to Brazil annually, in the absence of a timely and high quality TBT notification service, a one percent penalty from “export mistakes” could be as high as \$10 million in lost sales and in additional costs for unplanned engineering changes, unplanned product modifications, and unplanned shipment and reshipment, each year.

COMPANY #2
U.S. Consumer Goods Industry

Company Information

Division of an established large U.S. company with:

- \$2 billion in 2010 revenues
- The Division has exported to Brazil since 2009
- In 2009 Brazil export revenues were \$10,000, resulting from a pilot export initiative
- Current Brazil exports are at \$3 million (with plans to double over the next 2 to 3 years)

Utilization of Inquiry Point Services

The Brazil export market is viewed as a “challenging market with complex technical barriers, lots of bureaucracy, and lots of nuances.” Examples of some of the complexities include:

- Obtaining pre-market approvals which can require “complex dossiers for product composition, labels, test results for safety and efficacy, and sufficient product stability to support shelf-life”
- It may take three months or more to obtain approvals (“Brazil has one of the most costly product approval processes – at approximately \$1200 per product.”)
- At any one time, the Division has 50 to 60 products for which the initial one-time product approval costs represent an investment of \$60,000 to over \$70,000. When products are modified, these costs are incurred once again along with delays of up to 3 months.

Respondent has used U.S. WTO TBT Inquiry Point services for over 15 years (before her current position with the Division). She considers Inquiry Point services “extremely valuable. Company would not otherwise have access to timely and reliable information about changing technical standards and regulations. Information from NOTIFY U.S. can also be used for financial planning to estimate benefits and costs associated with product changes and other export related business decisions. Finally, information from NOTIFY U.S. makes it possible to submit comments before proposed changes go into effect. While the associated benefit depends on many other factors, the ability to comment on impending changes in a timely manner can be of significant value.”

Inquiry Point services are also helpful in “narrowing and focusing effort for assessing the risks of product modifications. Rather than looking for a needle in a haystack – this is particularly useful - even critical - when in uncharted territory (with a new product rather than an amended or modified product).” Beyond using NOTIFY U.S., respondent stressed the additional value of being able to obtain additional information and clarification from Inquiry Point staff.

Without U.S. WTO TBT Inquiry Point services, export market technical information would have to be procured on a commercial basis at an estimated annual cost that could range from \$50,000 to \$75,000. Without this information, it is unlikely that the planned doubling of Brazil exports over the next 2 to 3 years could be achieved.

Beyond avoiding these additional costs, the absence of Inquiry Point services could “result in more export mistakes such as delayed customs clearance, additional shipment costs, delays in getting product to market, and possibly lost sales.”

The respondent indicated that U.S. WTO TBT Inquiry Point Services make exporting faster, better, cheaper. This could be taken to imply that an increase of one or two percent additional exports could be conservatively inferred.

COMPANY #3
U.S. Automotive Industry

Company Information

Large U.S. company with:

- Over \$4 billion in 2010 revenues (exclusive of its Financial Services Division revenues)
- Long-term exporter to many export markets, including Latin America
- Exports are targeted to grow to 40% of company revenues

The company has sold vehicles in Brazil since 1993 and has had assembly plants in Brazil since 1999.

“Duties and tariffs levied in foreign countries can make the product un-competitively priced for local markets. One way we mitigate that problem is through postponement strategies. For example, we ship the product in component kits and delay final assembly until they reach Brazil. Completing final assembly in Brazil results in lower import duties. Using this strategy for Brazil reduces duties by nearly 85 percent.”(Company website, March 31, 2011).

Components are thus manufactured in the U.S. and shipped as component subassembly kits for final assembly in Brazil. The company does not report a breakdown of revenues from Brazilian sales or from sales in the Latin American region.

Utilization of Inquiry Point Services

The Brazilian export market has been subject to many regulatory changes concerning environmental and energy efficiency standards, among other technical issues.

The company has used U.S. WTO TBT Inquiry Point services for over 10 years to become aware of impending regulatory changes, to be able to offer comments on these changes and to respond to these changing technical requirements in a planned and efficient manner. Beyond occasional information provided by the company’s Brazilian assembly subsidiary, NOTIFY U.S. provides a

“very useful early warning system, without which the Brazil export program could be hamstrung and not fully understand that changes that are going on.”

Without NOTIFY U.S. and Inquiry Point services, the company would have to develop new expertise to dig out information about impending changes in-country as well as through direct interaction with WTO sources. Building the required in-house capability would have additional costs. However, these costs were not estimated.

Even with additional in-house capability, the information yield might not be as good as is currently provided through NOTIFY U.S. services. This could result in “not getting appropriate early warning and would increase the difficulties of exporting. Costly export mistakes are likely as some engineering changes can take as long as 2 years to implement. In the absence of early warning systems, expedited engineering changes can be very expensive and can cause delays in getting products to market, possibly resulting in lost export sales.”

The above company input indicates that U.S. WTO TBT Inquiry Point services make exporting faster, better, and cheaper and led to improved export profitability. This could be taken to imply that an increase of one or two percent additional exports could be conservatively inferred.

COMPANY #4
U.S. Power Equipment Industry

Company Information

Large U.S. company with:

- \$1.7 billion in 2010 revenues
- 32% of worldwide exports worth over \$540 million
- The company has exported to Brazil for over 10 years
- Current Brazil exports are approximately \$1 million per year and Brazil is viewed as a promising export market with significant growth potential

Utilization of Inquiry Point Services

Important technical requirements include energy efficiency, restricted substances (such as cadmium), engine emissions (contributing to ozone emissions), and battery performance, etc.

The company first started using NOTIFY U.S. in 2008. Before that time, the company relied on a law firm to work on the regulatory compliance issues. NOTIFY U.S. appears to be more cost effective. Without NOTIFY U.S., the company would have to subscribe to other regulatory compliance-type services for identifying and obtaining information about changing technical requirements. In addition, the respondent would have to spend more time on regulatory compliance issues herself.

In general, the respondent agreed that Inquiry Point services make exporting faster, better, cheaper. From this it may be conservatively inferred that Inquiry Point services promote greater exports, perhaps an increase of one or more percent exports per year.

ASSOCIATION - #1
Consumer Products Industry

Association Information

This major U.S. association for appliance manufacturers was established in 1915.

Exports from association members to Europe, Asia, and Latin American markets used to be very substantial. Over the years, while headquarters often remained in the U.S., many large manufacturers have moved manufacturing operations offshore. Still, the coordination of exports typically remains in the U.S. and supply chains have become more complicated than before.

The global export market is greatly affected by rapidly changing technical requirements and regulations. While “10 to 15 years ago tariffs were the most important barriers to exports, now rapidly changing technical regulations are often the greatest problem.”

Utilization of Inquiry Point Services

The Brazilian export market is relatively stable. Beyond Brazilian consumption, U.S. appliance shipments to Brazil are often transshipped to Uruguay, Argentina, and other Latin American countries. Longer term, over the next 5 to 10 years, it is expected that the Brazilian export market will grow substantially.

The association has a heavy reliance on the NOTIFY U.S. and other Inquiry Point services and uses the information to funnel it to association members.

The technical issues that the association is typically most concerned with include environmental regulations, energy efficiency regulations, safety regulations, and often rapidly changing conformity assessment systems. “NOTIFY U.S. service is valuable and provides accurate information about the (above technical) items of concern.

“Without NOTIFY U.S. Inquiry Point services companies would need to hire law firms or consulting firms to obtain similar information. Beyond the additional cost, commercial firms would be unlikely to generate the timely validation of changing technical requirements to the same degree as NOTIFY U.S. services can provide. The likely reason is that under WTO, Member country obligations are intergovernmental obligations (not private obligations) and governmental TBT Inquiry Point service organizations are in a stronger position to obtain timely and valid TBT information than commercial service providers.”

In the absence of WTO TBT Inquiry Point services, the more significant penalty (i.e., more significant than the additional cost of commercial information services) would be reduced timeliness and reduced information content and accuracy about changing technical requirements.

“A single forty-foot container can hold up to \$150,000 worth of high-value appliance products. If the container is stopped at customs due to non-compliance with technical requirements, unplanned shipping and reshipment costs, cost of product modifications,

and other penalties could easily be in the high five figures, i.e., \$60,000 or more per container or forty percent of the value of the shipment.”

“Without NOTIFY U.S. and the associated Inquiry Point services, as much as a five percent of U.S. exports might experience customs delays, problems, modifications and reshipment requirements.”

With five percent of shipments expected to experience customs problems along with the 40 percent associated cost penalties the aggregate impact from the non-availability of NOTIFY U.S. service could be as high as 2% lost exports (e.g., five percent times forty percent).

ASSOCIATION #2 Beverage Industry

Association Information

In 1973, three associations merged to form this national association of distilled spirits manufacturers. The association plays a pivotal role in providing information and analysis for member companies, including distributing information from NOTIFY U.S. to its members.

Over the last two decades, U.S. exports of distilled spirits “have risen dramatically to exceed \$1 billion” on an annual basis. At this time, the European market is a maturing market (but not expected to grow much further), while the developing world and Brazil are rapidly growing markets for U.S. distilled spirits.

Utilization of Inquiry Point Services

There are many differences in technical regulations among the different export markets. These technical requirements continue to undergo significant changes (including labeling requirements, excise stamps, etc.) and have become the predominant export challenge in contrast to import tariffs which have somewhat receded in importance.

The association and its member companies use NOTIFY U.S. as a timely and accurate “early warning system” that helps identify upcoming changes in technical requirements as well as to validate information obtained from other sources.

“The association and its members rely heavily on NOTIFY U.S. This saves lots of time making it possible to avoid going directly to the WTO for the information. The timely and accurate information provided through NOTIFY U.S. makes it possible to anticipate impending technical requirements and also to weigh in on these requirements before they enter into force”.

SUMMARY US INTERVIEWS

Preliminary Findings

Based on information from six interviews with U.S. companies and associations of companies exporting to Brazil, it would appear that U.S. WTO TBT Inquiry Point services are generating significant annual economic benefits for the U.S. economy including:

- Direct cost savings by avoiding or minimizing the need for commercial export consultants and/or law firms to identify changing regulatory requirements in a timely and accurate manner. These savings (avoided cost of commercial services) can range from \$50,000 to \$100,000 per company per year.
- In addition to avoided costs, commercial consulting firms or law firms are unlikely to provide the timely validation of changing technical requirements to the same degree as the U.S. WTO TBT Inquiry Point services are able to provide. In this fashion, Inquiry Point information services help U.S. exporters manage export risks more effectively. The likely reason is that under WTO, Member country obligations are intergovernmental obligations (not private obligations) and governmental WTO TBT Inquiry Points are in a stronger position to obtain timely and valid TBT information than commercial service providers.

According to companies and associations interviewed to date, WTO TBT Inquiry Point services generally make exporting faster, cheaper and easier and can thereby increase the level of exports by one to two percentage points.

These projected export increases are associated with the ability to avoid “export mistakes” due to insufficient knowledge about changing technical requirements. “Export mistakes” increase the likelihood of being unable to clear customs and can be costly, necessitating delays, fines and penalties, possible reshipments, expedited (and therefore more costly) engineering changes, and product or packaging modifications. Avoiding costly export mistakes is likely to increase the profitability of export programs and expand the level of export activities.

MINI-STUDIES OF BRAZIL INQUIRY POINT SERVICES

COMPANY #1
Brazilian Computer Hardware / Software Industry

Company Information

Products are customized high-quality systems for retail applications. Company has:

- Over \$R 30 million (USD 18.9 million) in 2010 revenues
- Over \$R 3 million (USD 1.9 million) in 2010 world-wide exports

In 2002, the company sent a “scout” mission to the U.S. to check out market opportunities and to take samples. A U.S. export program was started in 2003. Initial U.S. export volume was \$R 100,000 (USD 62,900). Current U.S. export volume is approximately \$R 500,000 (USD 315,000). Over the next five years, the company plans to increase U.S. exports threefold to \$R 1.5 million (USD 944,000).

While the company has a U.S. partner for product distribution (sales and service), it does not rely on the U.S. partner to obtain timely and reliable information about TBT issues (changing regulations, labeling, testing, and other requirements).

Utilization of Inquiry Point Services

The company started using INMETRO inquiry point services in 2007 (four years after the start of the U.S. export program). Services include:

- Notification “Early Warning” services and
- INMETRO assistance to resolve specific problems

An example of value-added INMETRO assistance was the identification of power cable design requirements in accordance with changing U.S. regulations

INMETRO services make U.S. exporting faster, cheaper, easier. Without INMETRO Inquiry Point services, the five-year plan for a threefold increase in U.S. exports would be difficult to achieve. It is estimated that increased U.S. exports:

- May not happen at all (30% probability)
- May only reach \$R 750,000 or USD 472,000 (50% probability)
- May only reach \$R 1 million or USD 629,000 (20% probability)

Without INMETRO services, the company would have to hire attorneys and/or consultants to track changing Federal and State regulations and requirements in the U.S. The approximate annual cost of these services could be \$R 85,000 (USD 53,000). This amount represents 17% of current U.S. exports and illustrates how INMETRO services can help avoid considerable exporting expenses and thereby facilitate the viability and competitiveness of this Brazilian exporter in the U.S. market.

COMPANY #2
Brazilian Beverage Industry,
(Both Alcoholic and Non-Alcoholic Beverages)

Company Information

An established large Brazilian company in the beverage industry with:

- \$R 3.6 billion (USD 2.3 billion) in 2010 revenues
- U.S. exports since 2005. Current U.S. exports are \$R 1.5 million (USD 943,000)
- By 2015, company is planning to increase U.S. exports to \$R5 million (USD 3.1 million) and by 2020 to \$R 10 million (USD 6.3 million).

While the company uses two importers in the U.S. for distribution and sales, it does not rely on these U.S. importers for the timely and accurate identification of changing technical requirements.

Utilization of Inquiry Point Services

The U.S. market is considered to be a difficult market with complex Federal requirements and complex State requirements different from State to State, and touching on many issues for Brazilian exports, including warning label requirements, recycling requirements, etc. Federal and State requirements are also subject to frequent changes.

Due to the challenges of operating in the complex U.S. market, company exports to the U.S. did not grow significantly during the first five years of export operations.

In early 2010, it became clear that better information was needed to maintain and grow the company's U.S. export program and the company started using INMETRO Inquiry Point notification and inquiry services. After starting to use INMETRO services, it was determined that these services "helped a great deal" to support exports to the U.S.

Without Inquiry Point services, improved information (more detailed and validated information than was typically available before 2010) would have to be procured from commercial service providers, including specialized law firms and/or specialized consultants to investigate changing Federal and State beverage import requirements.

The annual cost of such commercial services (operating in four States including the California market) could range from \$R 64,000 to \$R 95,000 (USD 40,000 to USD 60,000) and may not provide equivalent information content and validation as provided by INMETRO.

Without INMETRO services, planned U.S. export growth from \$R 1.5 million (USD 943,000) to \$R 5 million (USD 3.1 million) to \$R 10 million (USD 6.3 million) would not be achieved.

One tangible barrier to growing export volumes (without improved and valid information) would be higher levels of expected delays at U.S. customs, higher levels of expected fines and penalties due to improper labeling and other export “mistakes.” These “mistakes” would necessitate product modifications and reshipments at considerable additional cost. They may also result in lost sales and negative profitability impact.

COMPANY #3
Brazilian Transportation Equipment Industry

Company Information

Established company with:

- Over \$R 200 million (USD 126 million) in 2010 revenues
- U.S. exports since 2008. Current export at approximately \$R 9 million (USD 6 million)
- Expect to grow U.S. export business. However, did not specify planned future export levels.

While the company has a U.S. partner for distribution and sales, it does not rely on the U.S. partner for the timely and accurate identification of changing technical requirements.

Utilization of Inquiry Point Services

The U.S. market is considered to be a challenging market with complex technical regulations that have to be identified and followed, and with high customer expectations for functionality and quality.

Nevertheless, the company's U.S. export program would proceed even without INMETRO services. However, without INMETRO services, the company would need to hire specialized U.S. consultants to identify and obtain required technical information for the U.S. market. The avoided annual cost of a commercial service provider is estimated at \$R 95,000 (USD 60,000).

Beyond avoiding these additional costs, INMETRO is a neutral and authoritative information source that can efficiently establish and validate U.S. technical requirements. The information provided by commercial service providers may not be available as quickly and may not be as comprehensive and authoritative as the information provided through INMETRO services.

By way of summary, INMETRO Inquiry Point services make it possible to operate in the challenging U.S. export market with fewer delays at customs, at lower cost, and at reduced risk of making costly export "mistakes." Based on this response, it is assumed that INMETRO Inquiry Point services can be conservatively associated with 1% to 2% additional export growth.

COMPANY #4
Brazilian Processed Food Industry

Company Information

Privately held company in the Brazilian processed food industry:

- Did not provide annual revenue estimates or annual export estimates
- From its webpage information, the company is one of the top 100 Brazilian exporters
- Company is partly owned by Marubeni Corporation of Japan
- U.S. exports started 10 years ago. However, current export volume was not provided
- Expect to grow U.S. export business, without specifying planned future export levels.

Utilization of Inquiry Point Services

The company relies on key U.S. customers to obtain some regulatory information for the U.S. market. In addition, the company started using INMETRO Inquiry Point services in 2010. The INMETRO Inquiry Point services are considered “really good and really valuable.”

Without INMETRO services, no direct cost savings were indicated. However, INMETRO services make U.S. exporting faster, better, cheaper, leading to avoided delays at customs, avoided fines and penalties, and avoided lost sales. Based on this response, it is assumed that INMETRO Inquiry Point services can be conservatively associated with 1% to 2% additional export growth.

COMPANY #5
Brazilian Measurement Equipment Industry

Company Information

Established in 1983, one of the largest companies in the Brazilian measurement equipment industry, with strong export programs to Latin American markets. The company does not currently have U.S. sales.

Utilization of Inquiry Point Services

INMETRO information services and assistance were recently used during the company’s initial attempt to export measurement products to Venezuela. The shipment encountered difficulties at Venezuelan customs. These difficulties could not be resolved and without resolution, the new Venezuelan export initiative could have been terminated. INMETRO’s active assistance helped resolve the Venezuela customs problem, underlining findings from other Brazilian exporters that INMETRO services make exporting faster, better, cheaper and thereby encourage the growth of Brazilian exports.

SUMMARY BRAZIL INTERVIEWS

Preliminary Findings

Based on a limited number of interviews, it appears that INMETRO Inquiry Point services are generating significant annual economic benefits for the Brazilian economy along three dimensions:

- Direct cost savings from avoiding or minimizing the need for commercial export consultants to identify changing regulatory requirements in a timely and accurate manner. These savings (avoided cost of commercial services) range from \$R 64,000 to \$R 95,000 (USD 40,000 to USD 60,000) per company per year.
- In addition to avoided costs, commercial consulting firms are unlikely to provide the timely validation of changing technical requirements to the same degree as INMETRO is able to provide. Under WTO, Member country obligations are intergovernmental obligations (not private obligations) and governmental TBT Inquiry Point service organizations are in a stronger position to obtain timely and valid TBT information than commercial service providers. INMETRO information services thereby help Brazilian exporters manage export risks more effectively.
- TBT Inquiry Point services generally make exporting faster, cheaper and easier, perhaps increasing the level of exports by one or more percentage points, all other factors being equal. One important indicator is the ability to avoid “export mistakes” due to insufficient knowledge about changing technical requirements. “Export mistakes” increase the likelihood of not being able to clear customs and can be costly, requiring delays, fines and penalties, possible reshipments, engineering changes, and product or packaging modifications. Avoiding costly export mistakes is likely to increase the profitability of export programs and expand the level of export activities.

CONCLUSION FROM U.S. AND BRAZIL INTERVIEWS

Preliminary Findings

The results of the exploratory investigation – based on a limited number of interviews with U.S. companies, U.S. industry associations, and Brazilian companies – point to potentially significant economic benefits for U.S. and Brazilian exporters and for the U.S. and Brazilian economies.

Asking interview respondents to compare their actual export experience (utilizing NOTIFY U.S. and Alerta Exportador, respectively) to a counterfactual scenario without WTO TBT Inquiry Point services, our preliminary findings point to the following benefits

:

- Direct cost savings from not hiring commercial information providers - cost savings ranging from \$50,000 to \$100,000 per company per year (for U.S. exporters) and from \$40,000 to \$60,000 per company per year (for Brazilian exporters)
- Reducing exporting risks and avoiding exporting mistakes through access to up-to-date and reliable information about product technical requirements. The avoided consequences of exporting mistakes include delayed customs clearance, customs fines and penalties, the need for expedited (and therefore more costly) engineering changes, and reshipments.
- Avoiding exporting mistakes can have economic benefits equivalent to increasing export volumes by as much as one to two percentage points. Depending on companies' annual export volumes, this benefit can range from
 - \$10,000 to \$20,000 per company per year (with export volumes of \$1 million)
 - \$100,000 to \$200,000 per company per year (with export volumes of \$10 million)
 - \$5 million to \$10 million per company per year (for large exporters with export volumes of \$500 million per year).

If these results were representative of the entire population of NOTIFY U.S. and Alerta Exportador users and could be extended to all NOTIFY U.S. and Alerta Exportador users, the economic benefits from avoiding export mistakes due to the availability of U.S. and Brazilian WTO TBT Inquiry Point information services to the economies of the U.S. and Brazil could be substantial.

MODELING ECONOMIC BENEFITS

After a review of various macro-economic models (including the gravity model which attempts to predict economic impact by positing that international trade flows are governed by forces analogous to gravitational force in Newton's equation), information from exploratory interviews led us to conclude that an empirically based micro-economic model will provide the appropriate (practical, transparent and rigorous) analytical approach for estimating the economic benefits of information services provided by WTO TBT Inquiry Points.

The proposed empirical model is based on findings from an initial literature search and the results of approximately a dozen initial mini-studies. It posits that economic benefits (EB) are a function of avoided direct exporting costs (ADEC), avoided costs from failures to clear customs expeditiously (ACCC), generation of additional export volumes, i.e., increasing market share (AEV), and other factors to be determined. Other factors include potential interaction effects among model variables ADEC, ACCC, and AEV.

Expressed as a linear equation with coefficients C1, C2, and C3, economic benefits are estimated by specifying the four terms of the equation:

$$\mathbf{EB = C1 (ADEC) + C2 (ACCC) + C3 (AEV) + Other Factors}$$

The model is intended to encompass U.S.- Brazil trade flows as well as trade flows with the other 152 WTO Members, i.e., it aims at being a general model for estimating economic benefits from WTO TBT Inquiry Point information services for the entire WTO space.

To specify the terms of the above linear equation and to use it for the assessment of bilateral economic benefits from U.S.- Brazil trade flows, it is recommended that during a subsequent (future) Phase II effort:

- Coefficients be estimated through a process of additional discovery to generate a sufficient number of data points to parameterize the model and facilitate drawing general conclusions about economic benefits
- The universe for additional discovery and data generation will consist of all current users of WTO TBT Inquiry Point information services (NOTIFY U.S.)
- To avoid analytical bias, due diligence will be employed to ensure that data points are generated in an independent and objective manner (as opposed to focusing on those information service users who are currently most satisfied)

Given the expected differential impact of WTO TBT Inquiry Point information services for:

- Exporting companies of different sizes and capabilities as well as the
- Differential challenges of exporting to established markets in developed countries vs. exporting to emerging economies,

the coefficients of the proposed linear equation will be separately estimated for each of the four cells in Table 1, resulting in a set of four linear equations for different combinations of exporter capabilities and types of export markets.

Table 1: Analytical Space for Linear Equation

	Large Exporting Companies (with Revenues > USD 1 Billion)	Small Exporting Companies (with Revenues < USD 1 Billion)
Exporting to Established Markets in the Developed World		
Exporting to Emerging Economies		

In every step of the analysis, an effort will be made to use a practical approach for estimating economic benefits in a transparent and rigorous manner, avoiding unnecessary complexities and arbitrary assumptions that are not logically compelling or that cannot be documented.

Finally, recognizing that economic analysis is subject to many uncertainties, linear equations will be used to generate range estimates rather than point estimates of economic benefits.