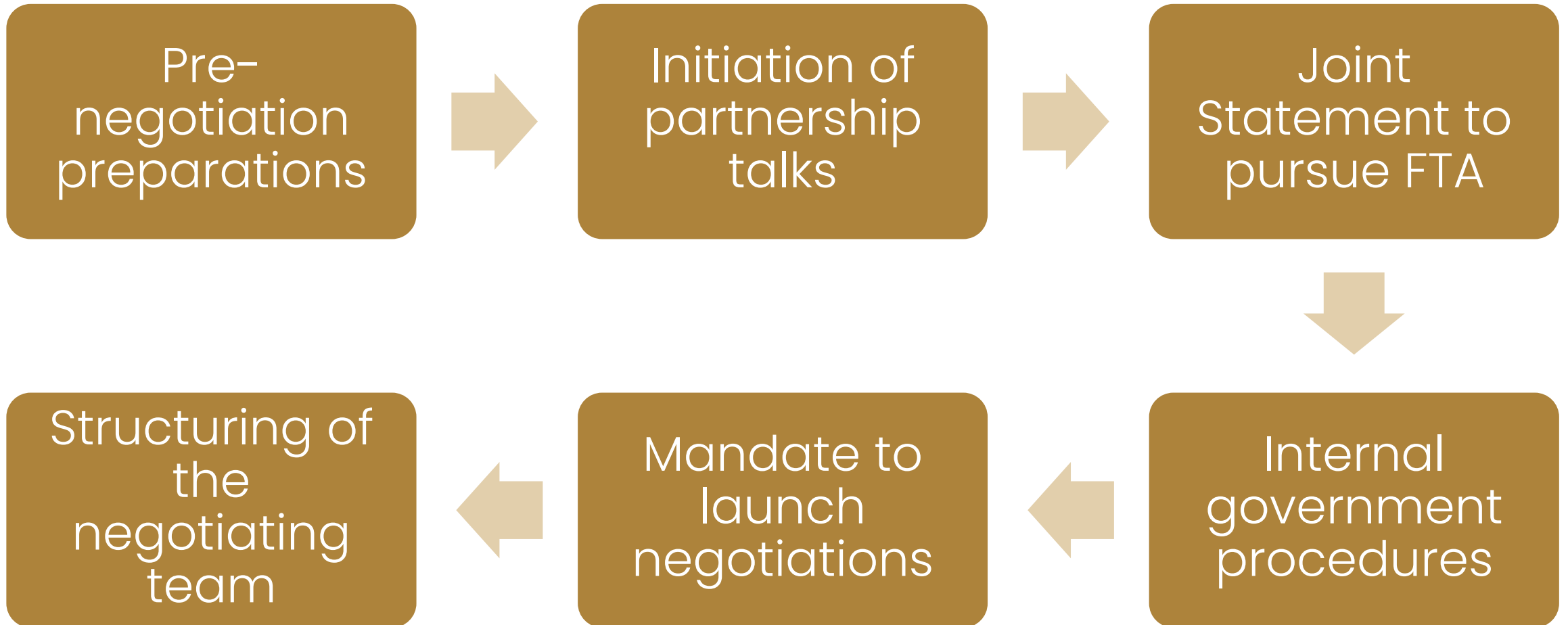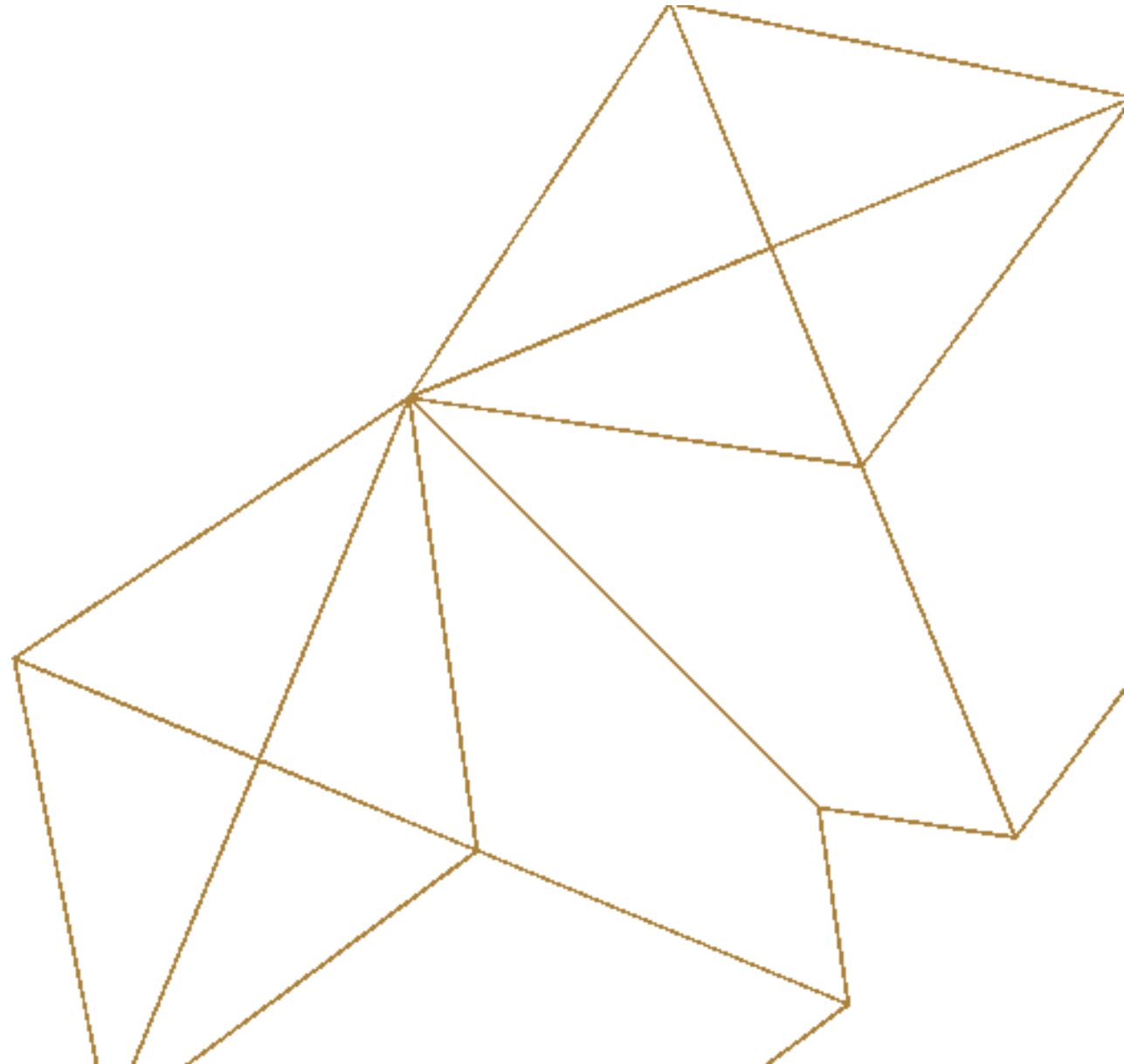# Economic Analysis and Impact Assessment

Module 2

Learning Objectives

- Understand the significance and methodology of national feasibility studies for FTAs

- Learn about different trade policies and how they impact FTAs

- Examine the influence of FTAs on macroeconomic indicators

- Understanding cost-benefit analyses for potential FTAs

- Use domestic sensitivity analysis to comprehend local economic dynamics and stakeholder interests

FTA Process: Overview

Pre-negotiation preparations	→ Initiation of partnership talks	→ Joint Statement to pursue FTA
Structuring of the negotiating team	← Mandate to launch negotiations	← Internal government procedures

Preparing for FTA Negotiations

Understanding existing trade policies

International Trade — The Instruments of Trade Policy
- Tariffs
- Non-tariff measures
- Export-related measures
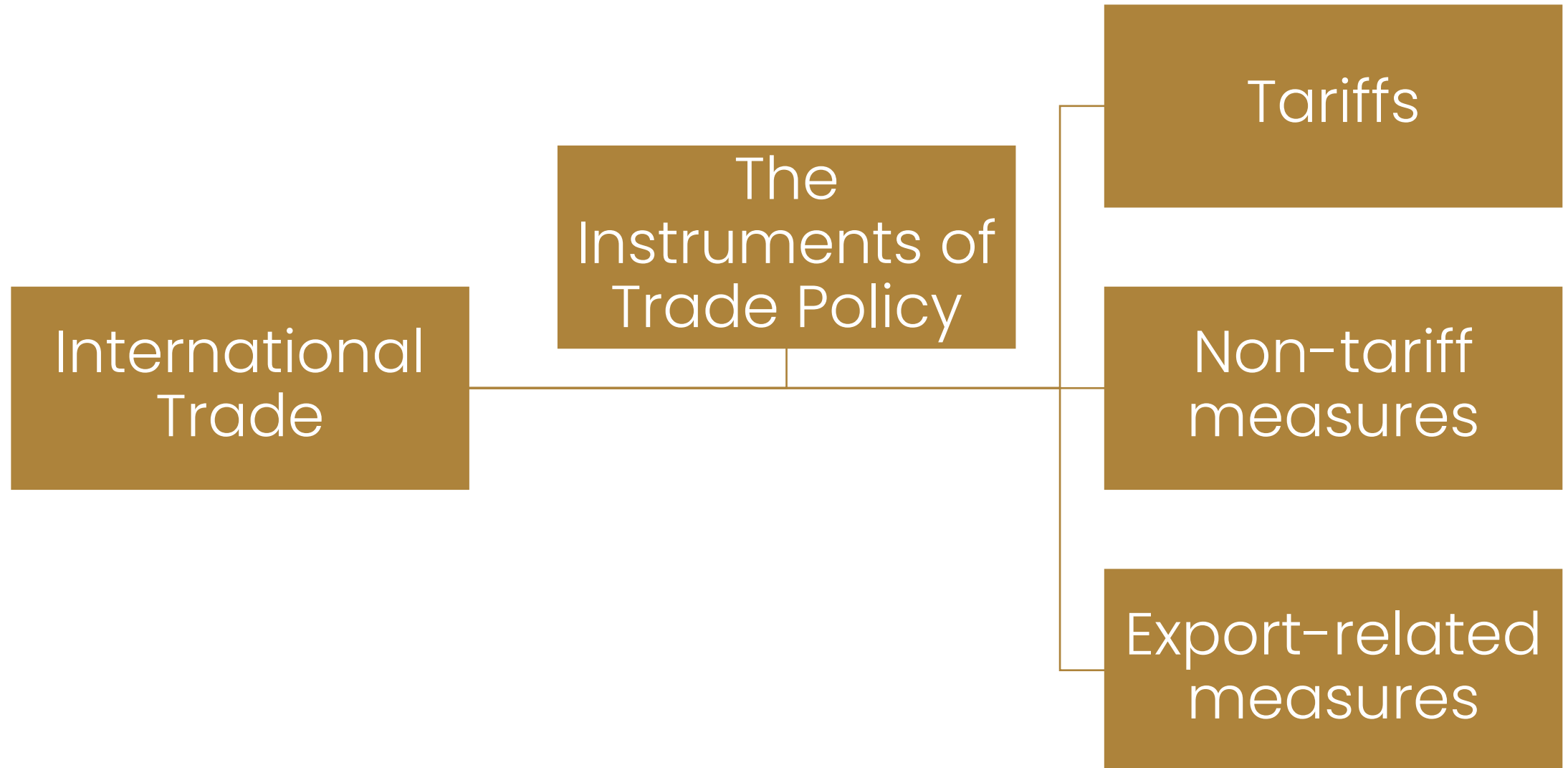
Tariffs

- Tariffs, also known as import tax, are taxes or duties imposed on goods and services imposed at the border

- They are the most visible and universally used trade measures that determine market access for goods

- Import duties being pervasive than export duties, tariffs are often identified with import duties

- Trends:
  - Decline in average tariffs over the years
  - Significant tariff reduction resulting from the Uruguay Round and other unilateral decisions
  - In 2021, the average MFN tariff for agriculture products was 14.8 per cent compared to 8.0 per cent for non-agriculture products
  - Average tariffs (on industrial imports and agricultural products) are higher in low- and middle-income middle-income countries

Tariffs

- National Tariff Line Level:
  - Countries generally base their tariff schedules on the World Customs Organization's Harmonized System (HS) nomenclature
  - Countries then append additional digits to distinguish between different tariff lines
  - The HS specifies products using six digits

HS Code	TLL Codes	TLL Code Description
950611		
	95061120	Skis, cross-country snow-skis
	95061140	Skis, snow-skis (o/than cross-country)
	95061160	Parts and accessories (o/than poles) for snow-skis

  - Where to find tariff data?
    - Country Tariff Schedules published on respective country/ Ministry of Trade website
    - World Integrated Trade Solution (WITS)
    - Tariff Analysis Online (access the WTO's Integrated Data Base (IDB) and Consolidated Tariff Schedules (CTS) database)

Forms of Tariffs

- **Most-Favored Nation Tariffs**: MFN tariffs are what countries promise to impose on imports from other members of the WTO, unless the country is part of a preferential trade agreement

- **Bound Tariff** : A bound tariff is a tariff which a WTO member binds itself with a legal commitment not to raise it above a certain level

- **Applied Tariffs** : An 'applied tariff' is the duty that is actually charged on imports on a most-favored nation (MFN) basis.

Note: The applied tariff is less than or equal to the bound tariff in practice for any particular product.

- **Preferential Tariff** : Nearly all countries are part of at least one preferential trade agreement, under which they promise to give another country's products lower tariffs than their MFN rate.

- Grant of preferences under schemes such as:
  - The Generalized System of Preferences
  - Generalized System of Preferences +
  - Everything But Arms

Forms of Tariffs

Comparing forms of tariffs:

- In general, the bound rate is the highest tariff, the preferential the lowest one, and the MFN applied is generally somewhere in between the other two as illustrated below.

- WITS uses the concept of effectively applied tariff, defined as the lowest available tariff.

- The gap between the bound and applied MFN rates is called the binding overhang.

- If a preferential tariff exists, it will be used as the effectively applied tariff. Otherwise, the MFN applied tariff will be used.
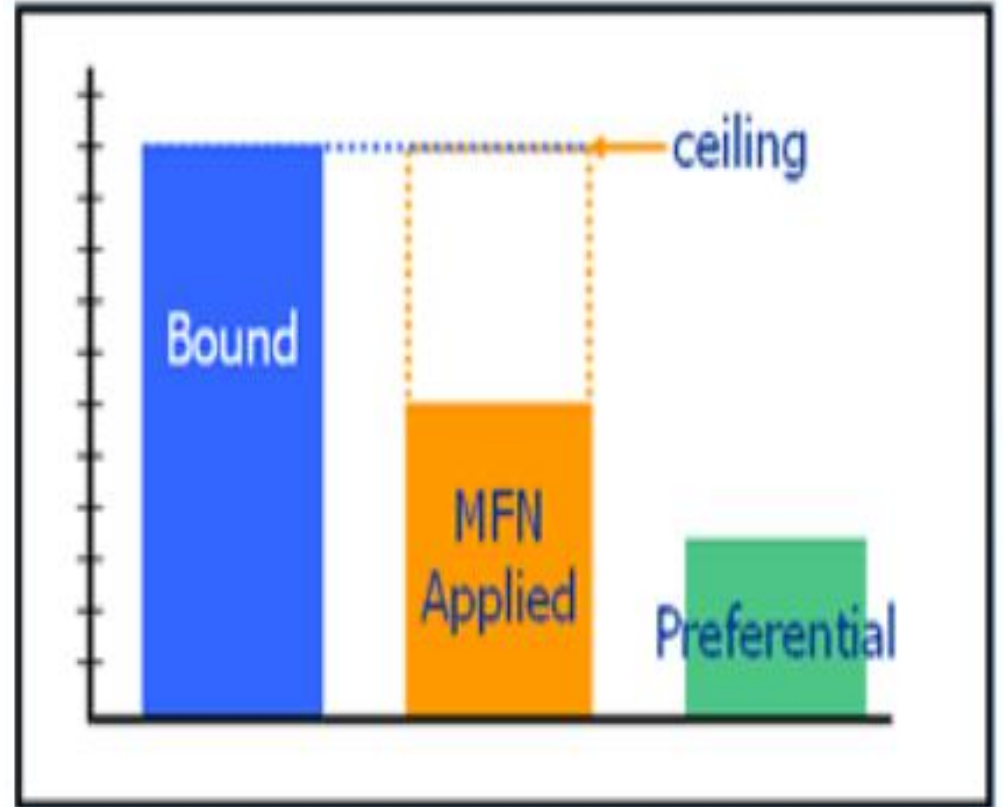
Types of Tariffs – I

- **Specific Tariff** : A specific tariff is an import duty that assigns a fixed monetary tax per physical unit of the good imported
  - For example – A country levies $0.51 specific tariff on every wrist-watch imported into the United States. Thus, if 1000 watches are imported, the U.S. government collects $510 in tariff revenue. In this case, $510 is collected whether the watch is a $40 Swatch or a $5,000 Rolex.

- **Ad valorem tariff** : An *ad valorem* tariff is levied as a constant percentage of the monetary value of one unit of the imported good
  - For example – A country currently levies a 2.5 percent ad valorem tariff on imported automobiles. Thus, if $100,000 worth of automobiles are imported, the country collects $2,500 in tariff revenue. In this case, $2,500 is collected whether two $50,000 worth BMWs or ten $10,000 worth Hyundais are imported.

Types of Tariffs – II

- **Mixed Tariffs** : Mixed tariffs are expressed either on the basis of the value of the imported goods (an ad valorem rate) or on the basis of a unit of measure of the imported goods (a specific duty)
  - For example - Indian duties on certain rayon fabrics are either 15% ad valorem or Rs. 87 per square meter, whichever is higher
- Compound Tariffs: Compound tariffs include both ad valorem and a specific component to tariffs. It ensures that the tariff revenue is influenced by both the value and quantity of the imports.
  - For example - Pakistan charges Rs. 0.88 per liter on some petroleum products plus 25 percent ad valorem

Types of Tariffs – III

- **Tariff Rate Quotas (TRQs)**: Tariff rate quotas combine two policy instruments: quotas and tariffs. Imports entering under the specified quota portion are usually subject to a lower (sometimes zero), tariff rate. Imports above the quantitative threshold of the quota face a much higher tariff
  - For example:
    - A government sets a specified quantity of sugar that can be imported at a lower tariff rate. Assume it sets a quota of 100,000 metric tons. Imports of sugar up to the specified quota quantity (e.g., 100,000 metric tons) are subject to a zero or lower tariff rate. On the contrary, imports of sugar that exceeds the specified quota quantity are subject to a higher tariff rate
  - Note: this is mostly driven by the aim to protect domestic producers from increased foreign supply.

Common Measures of Tariff Aggregation

- Simple average of all tariff lines:
  - The simple average of all tariff line duties is a measure used to analyze and summarize the overall level of protection provided by a country's tariff structure
  - It is calculated by taking the average of the individual tariff rates applied to different products across all tariff lines

$$\text{Simple Average} = \frac{\text{Sum of Individual Tariff Rates}}{\text{Number of Tariff Lines}}$$

- Simple average of tariff lines with pre-aggregation
  - It takes into account the aggregation of tariffs at a higher level, such as product groups or chapters, before computing the average
  - This approach provides a more aggregated view of the tariff structure, as opposed to calculating the average at the individual tariff line level

$$\text{Simple Average (with pre-aggregation)} = \frac{\text{Sum of Aggregated Tariff Rates}}{\text{Number of Aggregated Categories}}$$

Common Measures of Tariff Aggregation

- Trade-Weighted Average Tariff (TWAT):
  - It calculates the average tariff rate on a country's imports, taking into account the relative importance (or weight) of each product in the total import basket

$$TWAT = \sum_{i=1}^{n}(P_i \times T_i)$$

   where n is the number of product categories or tariff lines; P_i is the proportion of imports for product category; i in the total import basket; T_i is the tariff rate for product category i

  - It provides a more realistic picture of the overall tariff burden a country faces by considering the significance of different products in the overall import composition

- Trade-Weighted Average Tariff (TWAT) using standard weights:
  - It calculates the average tariff rate on a country's imports, but instead of using the actual import shares of different products, it employs predefined standard weights
  - These standard weights are often based on the economic importance of various sectors or products in the global economy

$$TWAT_{\text{Standard}} = \sum_{i=1}^{n}(W_i \times T_i)$$

   Where n is the number of product categories or tariff lines; W_i is the standard weight assigned to product category I; T_i is the tariff rate for product category i

Tariffs as an Instrument

- Tariffs are primarily aimed at raising revenue for the government

- Tariffs help to protect the domestic import-competing industries

- Tariffs are used to regulate the volume of imports
  - Tariffs leave the world market price of the goods unaffected; while raising their prices in the domestic market

- Tariffs are aimed at altering the relative prices of goods and services imported

- Tariffs are used as a response to trade distortions:
  - **Anti-dumping Duties**: Dumping occurs when manufacturers sell goods in a foreign country below the sales prices in their domestic market or below their full average cost of the product
  - **Countervailing Duties** : Countervailing duties are tariffs that aim to offset the artificially low prices charged by exporters who enjoy export subsidies and tax concessions offered by the governments in their home country

Non-Tariff Measures (NTMs)

- Non-tariff measures comprise all types of measures which alter the conditions of international trade, including policies and regulations that restrict trade and those that facilitate it

- NTMs constitute the hidden or 'invisible' measures that interfere with free trade

- NTMs impact on quantities trade or prices, or both

- Depending on their scope and/or design NTMs are categorized as:
  - **Technical Measures**: Technical measures refer to product-specific properties such as characteristics of the product, technical specifications and production processes.
  - **Non-technical Measures**: Non-technical measures relate to trade requirements; for example; shipping requirements, custom formalities, trade rules, taxation policies, etc.
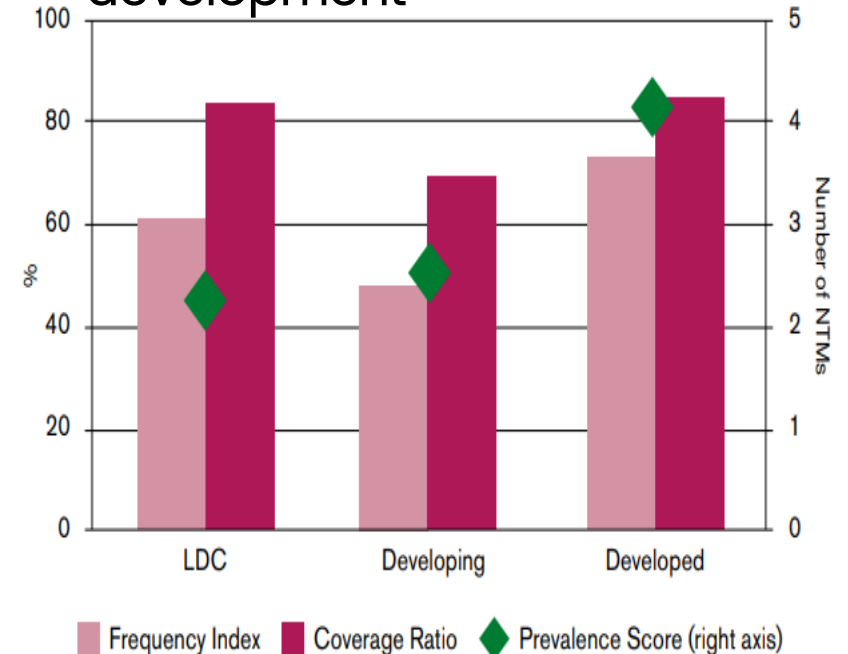
Non-Tariff Measures (NTMs)

Use of NTMs in imports vs exports
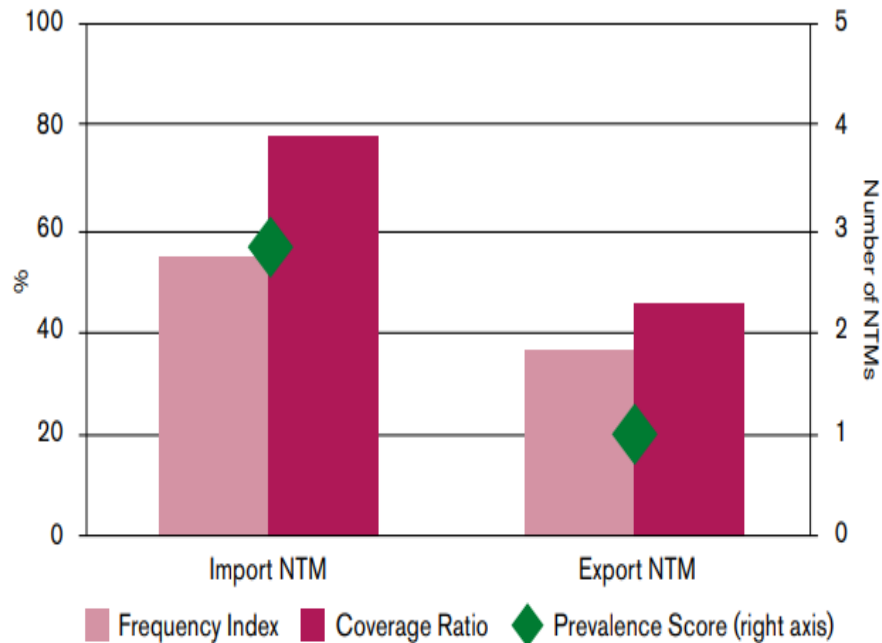
Source: WTO 2021

The percentage of products affected by one of more NTMs is higher for imports than for exports

Use of NTMs, by level of a country's development

Source: WTO 2021

The percentage of products affected by one of more NTMs is highest for developed countries

Note: The Frequency Index is essentially the percentage of products affected by one or more NTMs; the Coverage Ratio is the share of trade subject to NTMs; The Prevalence Score is an average of how many measures apply to a given product group.

Non-Tariff Measures (NTMs)

- NTMs are primarily regulatory in nature which makes their quantification difficult
- NTMs are classified according to the International Classification of NTMs, as established by the MAST group.
  - **This** follows a taxonomy of all measures considered relevant in today's international trade
- Sources of information on NTMs:
  - TRAINS Portal
  - The World Integrated Trade Solution (WITS)
  - Global Trade Helpdesk
- Ad valorem Equivalent (AVE) is used to estimate the incidence of NTMs
  - It measures the distortion imposed by the NTM on the domestic economy
  - The AVE of an NTM is the proportional rise in the domestic price of goods to which it is applied, relative to a counterfactual where it is not applied

Forms of NTMs

- **Sanitary and Phytosanitary (SPS) Measures**: Measures that are applied to protect human or animal life from risks arising from: additives, contaminants, toxins or disease-causing organisms in food
  - e.g., A sample test on imported oranges to check for the residue level of pesticides

- **Technical Barriers To Trade (TBT)**: Measures referring to technical regulations, and procedures for assessment of conformity with technical regulations and standards.
  - e.g., Restrictions on toxins in children's toys

- **Licensing**: License control measures generally aimed at restraining the quantity of goods that be imported
  - e.g., Only hotels and restaurants are allowed to import alcoholic drinks

- **Local Content Requirements**: Policies imposed by governments that require firms to use domestically-manufactured goods or domestically-supplied services in order to operate in an economy

- **Voluntary Export Requirements**: Measures by which the government or an industry in the importing country arranges with the government or the competing industry in the exporting country for a restriction on the volume of the latter's exports of one or more products

- **Import Quotas**: An import quota is a direct restriction which specifies that only a certain physical amount of the good will be allowed into the country during a given time period, usually one year.

- **Other NTMs** include Price Control Measures, Measures affecting competition, Government Procurement Policies, Rules of Origin, and others

Non-Tariff Barriers

- **Non-tariff barriers (NTBs)** are a subset of NTMs that have a trade inhibiting effect
- Such measures are restrictive by design - explains why the word "barrier" is used
- Include government laws, regulations, policies, conditions, restrictions or specific requirements, and private sector business practices, or prohibitions
- No widely accepted definition exists
  - Whether an NTM is an NTB largely depends on the intent of the regulation
- Non-technical NTMs are mostly NTBs
  - Example: import bans, general or product-specific quotas, complex/discriminatory rules of origin, Quality conditions imposed by the importing country on the exporting countries, unjustified sanitary and phyto-sanitary conditions, unreasonable/unjustified packaging, labelling, product standards, complex regulatory environment

NTBs as an Instrument

- NTBs are policies that induce an adverse impact on trade due to the specific discriminatory and protectionist intent

- Primarily put in place to serve public interest, such as:
  - protection of public morals or health and lives of humans, animals or plants
  - pursuance of foreign policy or national security goals
  - achievement of a monetary policy mandate
  - protection of artistic, historical or archaeological treasure
  - conservation of natural resources or wildlife

- NTBs discriminate against foreign goods in favor of domestic products, violating the principles of non-discrimination and fair trade enshrined in international trade agreements
  - Overly restrictive NTBs can hinder economic growth by limiting access to global markets and stifling competition
  - Globally, this can slow down innovation and productivity

How does FTA address trade policy instruments?

- FTAs contribute towards greater and more targeted tariff reduction
- Targeted co-operation among governments in designing NTMs offers an efficient option to achieve regulatory objectives while reducing potentially unnecessary trade-costs
- Supports greater coherence and interoperability across national regulatory regimes, enables economies to take advantage of the welfare-enhancing benefits from trade
- Recent FTAs increasingly focus on:
  - Reducing non-tariff barriers, such as regulation and intellectual property requirements, as well as reducing tariffs.
  - Require or encourage members to initiate regulatory co-operation
  - Horizontal chapters in these agreements anchor the principles and commitments to engage in regulatory co-operation or regulatory coherence in the legal text

Understanding the Impact Assessment
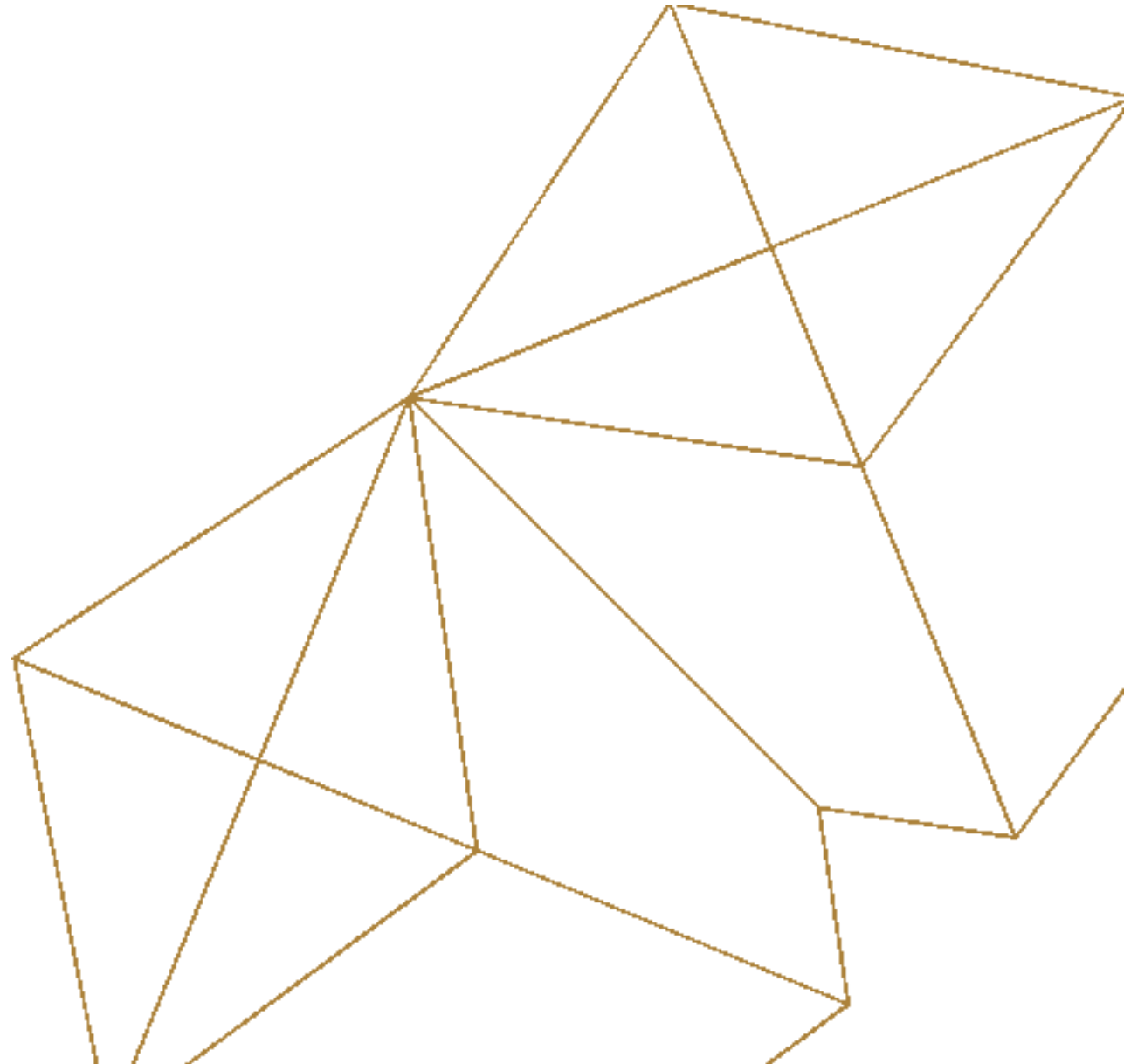
Why Conduct an Impact Assessment?

- An impact assessment (IAs) is important to understand the broader socio-economic impact of any trade agreement

- IAs provide guidance on:

Country's position globally

Potential trade partners

Enhanced trade and economic linkages

Gain for priority sectors

Opportunities for new membership

Future preparedness

Consequences of not joining

Why Conduct an Impact Assessment?
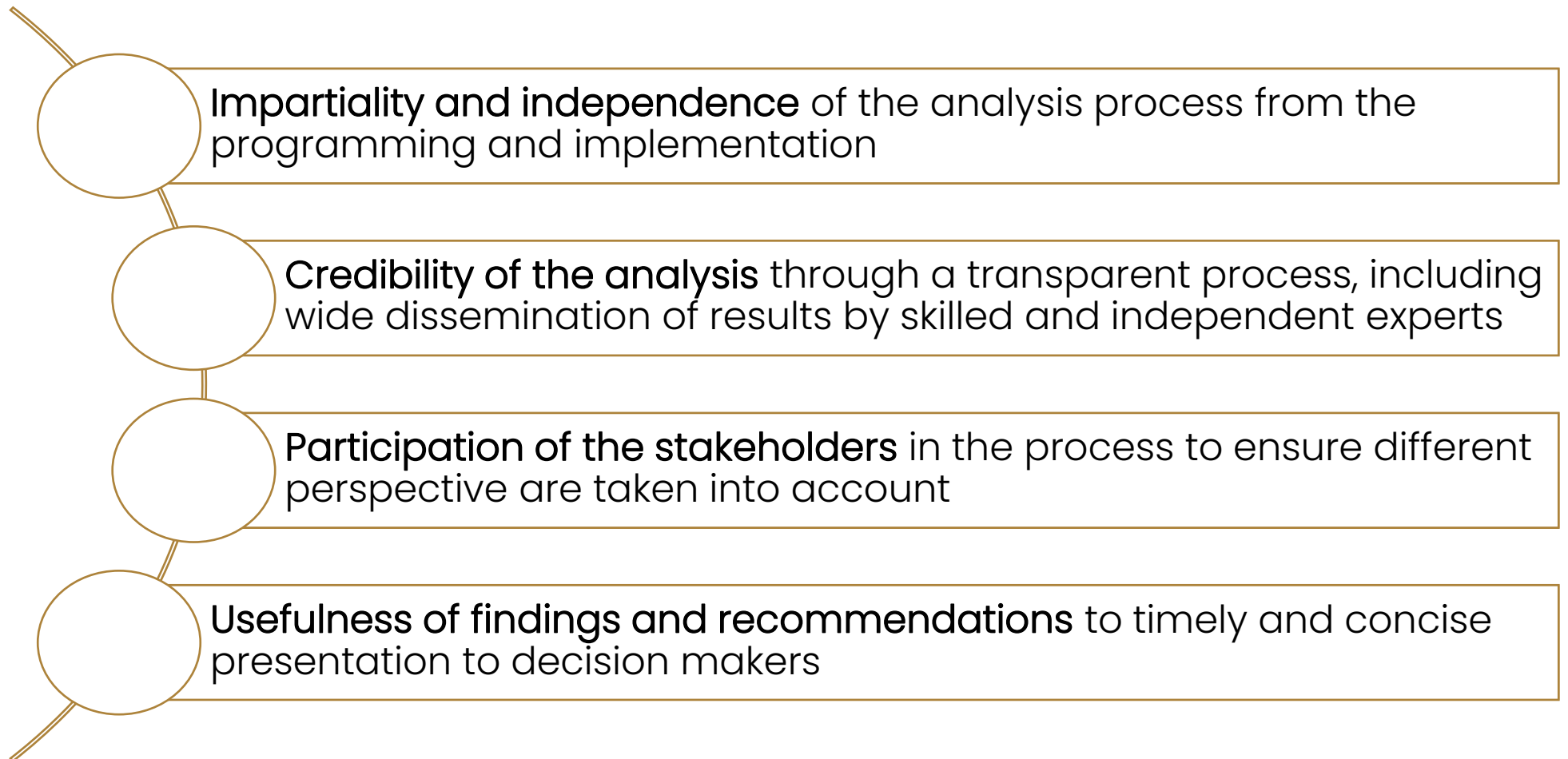
- Explores political, legal, economic, social, and environmental implications of the free trade agreement (FTA) in any potentially affected geography

- The outcomes of an impact assessment provides information to identify potential risks, opportunities, trade-offs, and other interests

- Impact assessments are undertaken at the macroeconomic, sector, regional, and household levels

Guiding Principles for Impact Assessment

Impartiality and independence of the analysis process from the programming and implementation

Credibility of the analysis through a transparent process, including wide dissemination of results by skilled and independent experts

Participation of the stakeholders in the process to ensure different perspective are taken into account

Usefulness of findings and recommendations to timely and concise presentation to decision makers

Types of Impact Assessment

- Impact assessments are conducted three stages of an FTA

Ex-ante Impact Assessment

- Ex-ante impact assessment refers to the evaluation conducted before the FTA negotiation begins

Mid-term Impact Assessment

- mid-term assessment occurs during the negotiation and/or the implementation phase of the trade agreement, typically after a certain period has passed since its initiation

Ex-post Impact Assessment

- Ex-post impact assessment takes place after the trade agreement has been in place for a significant period, often several years

Why conduct an Ex-ante Impact Assessment?

- An ex-ante impact assessment aims to:
  - Assess the impact of tariff and non-tariff measures in current pattern of trade
  - Provide a preliminary assessment of the expected impact (positive/negative)
  - Identify the potential implications for other related areas (for example, environmental protection, employment, investment, etc.)
  - Assess the value of tying up resources in the implementation process
- Impact assessments can be in the form of:
  - National feasibility studies
  - Domestic sensitivity analysis
  - Scoping studies

Process and Scope

- Trade impact assessments consist of two complementary components of equal importance:
  - A robust analysis of economic (tariff and non-tariff measures), social, human rights, and environmental impacts, using, among other methods, modelling techniques and causal chain analysis; and
  - A consultation process involving stakeholders in FTA member countries to gather information and disseminate results

Process and Scope....contd.

- Must be undertaken in a clear, objective, proportionate, and evidence-based manner
- Each analytical step should follow a logical flow
  - Identifying the causal chain analysis and baseline scenario
  - Screening trade measures that are likely to have significant positive or negative impacts
  - Scoping the components of the trade measures likely to be the main drivers of the predicted impact
  - Analyzing overall impact in the broad aspects (economic, social, human rights, environmental, any other cross-cutting aspects) and sectoral aspects

Process and Scope – Phases

- The different steps involved in the impact assessment process include:

Inception Phase	Interim Phase	Final Phase
- Agree on the scope of the study - Assess the availability and quality of data - Clarify the methodology, analyze the policy texts, propose different scenarios - Map and consult key stakeholders - Conduct a full literature review - Conduct preliminary case studies	- Set up models for quantitative analysis, refine scenarios, elaborate assumptions and risks of the quantitative work - Undertake extensive stakeholder consultations - Test and validate the assumptions made in the impact assessment - Develop an effective communication strategy to reach out to different constituents - Propose indicators for Monitoring and Evaluation (M&E), and identify areas of implementation gap	- Include economic, social, environmental and human rights impact - Identify risks and mitigation policies - Key recommendations and implementation plan - Include limitations and further areas of research

Analytical Approach to Impact Assessment

- An impact assessment requires a mix of quantitative and qualitative analytical approaches.

- **Quantitative research** produces data in the form of numbers that can be aggregated and analyzed to describe and predict relationships

- **Qualitative research** produces data and information stated in textual forms.

Analytical Approach – Quantitative

- A robust analysis of economic, social, human rights, and environmental impacts, using, among other methods, modelling techniques and causal chain analysis

- The approach relies on
  - Building classical trade indicators to analyze the trade flows between FTA countries and rest of the world
  - Identifying patterns and trends in the partner countries
  - Assessing a country's competitiveness and potential changes in its market access offered under the FTA

Analytical Approach – Quantitative

- The quantitative approach can either be static or dynamic in nature
  - Static:
    - The model examines the effect of moving from one equilibrium point to another due to the FTA in place
  - Dynamic:
    - Such models examine the path of the adjustment brought about by changes in the trade policy variables (due to the FTA)

Analytical Approach – Qualitative

- Complements qualitative analysis, and is also needed to:
  - Verify assumptions made in the quantitative modeling
  - Benchmark results against data
  - Overcome and rectify limitations in data
  - Triangulate findings and recommendations
- The approach includes tools such as stakeholder consultations, interviews, roundtables, surveys, among others

Choosing an Approach

- The choice of approaches must be flexible
- The choice of methodology and the subject of the study will determine the tools for data sources, collection and analysis
- The approach to stakeholder consultation will depend on:
  - factors specific to the stakeholders
  - the level of their interest
  - influence concerning the issue at hand
- Data protection, security, and confidentiality should be ensured

Determining the desirability of an FTA

- Trade volume effect:
  - This is essentially the change in tariff revenues, brought about by the changes in imports
  - This effect is closely related to the seminal study by Viner (1950) classified by the effects of the Customs Union (CU):
    - trade creation - means reduced imports from non-FTA members, while trade creation effect means the increase in the sum of increased imports from FTA/CU.
    - trade diversion effects - If bilateral tariffs are reduced only on imports from countries that are already the lowest-cost supplier, trade diversion does not occur.
  - The sum of the two effects corresponds to the trade volume effect

FTAs/CUs are likely to be beneficial if the partners initially account for large shares of each other's imports, as would be the case if they were low-cost producers.

Determining the desirability of an FTA

- Terms of trade effect
  - Changes in the trade between FTA partners countries will probably induce changes in their border prices with consequent effects through change in their terms of trade
  - If imports of the FTA members from the rest of the world decrease, then the terms of trade of the members of the FTA are likely to improve, and vice versa

The terms of trade effects are supposed to have ambiguous results in general, because an FTA may or may not bring expansion of intra-regional trade and contraction of external trade.

Determining the desirability of an FTA

- Location effects and regional disparity
  - In a perfectly competitive environment, regional integration reduces intra-FTA factor price differences – factor price equalization
  - However, economic geography, often assumes imperfect competition and scale economies, which sometimes imply reverse
    - Scale economies and economies of agglomeration mean that firms will not locate some productive capacity in every country or region
    - Firms will relocate based on the balance between trade costs and production costs
    - This balance is influenced as trade barriers are reduced under FTAs
    - As a result, industries could agglomerate in certain regions and thereby increasing regional disparity

Determining the desirability of an FTA

- Other dynamic effects
  - Apart from the previously mentioned static (i.e., one-time) changes with the introduction of an FTA, there are multiple dynamic (i.e., medium- and long-term) implications of FTAs
  - Dynamic effects of an FTA may be more substantial and pervasive
  - Some important dynamic effects include:
    - Economies of scale and variety
    - Impacts on FDI
    - Structural policy change and reform
    - Competitiveness
    - Long-term growth effects

Conducting an Impact Assessment
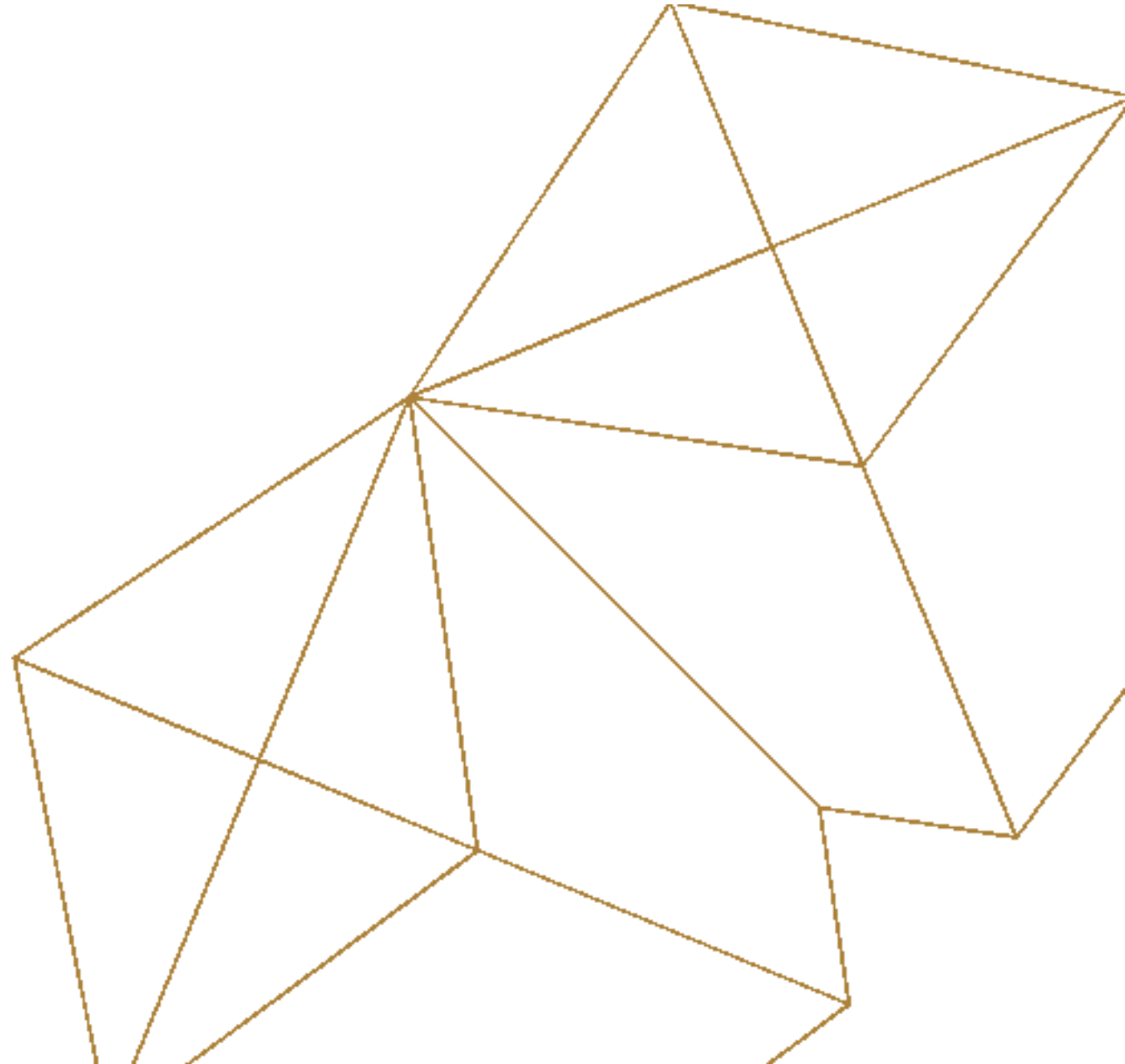
Quantitative Approach to the Impact Assessment

- Ex-ante assessment can be done with the help of the following approaches:
  1. Trade Indicators
  2. Partial Equilibrium
  3. General Equilibrium
  4. Cost-Benefit Analysis

- These methods can be used separately or combined in FTA impact analysis depending on the type of questions asked and the availability of data at different levels of aggregation

Trade Indicators

- Trade indicators are useful in measuring how a country performs vis-à-vis other countries in international trade

- Some key indicators include:
  - Country's Share of World Exports
  - Share of Product in Total Exports
  - Share of Market in Total Exports
  - Revealed comparative advantage index
  - Trade Intensity Index
  - Trade Complementarity Index
  - Export diversification (or concentration) index
  - Index of Export Market Penetration
  - Grubel-Lloyd Intra-Industry Index on intra-industry trade

- However, its capacity to quantifying the effects of trade policy change is limited

- The next module covers these in greater detail for use in formulating country positions

Data sources for calculating Trade Indicators

- Some trade data sources include:
  - United Nations COMTRADE
  - UNCTADStat
  - WITS
  - IMF
  - CEPII
  - WTO's Tariff Analysis Online (TAO)
  - UNCTAD - Trade Analysis Information System (TRAINS)
  - ITC Market Analysis Tool
  - Eurostat
  - United States International Trade Commission (USITC)
  - Food and Agriculture Organisation
  - African Development Data Finder Repository

Partial Equilibrium Approach (1)

- The partial equilibrium framework is a modelling tool for estimating the impact of a given policy change (like tariff reduction) upon the factors directly affected by the change, such as the price, demand, and supply of the products concerned

- The model only looks at the "partial" equilibrium, i.e., at the demand-supply equilibrium level of prices within a specific product-market

- It can be developed to undertake micro-simulations of the effect of FTAs

Partial Equilibrium Approach (2)

- A basic partial equilibrium model essentially has three equations, specifying demand, supply, and market-clearing condition (where demand is equal to supply)

- A partial equilibrium model can cater for different types of trade policy-change scenarios
  - change in the tariffs facing multiple exporting countries/regions
  - the removal (or the application of) of NTMs and other trade costs
  - trade creation or trade diversion effects of an FTA

- The Single Market Partial Equilibrium Tool (SMART) model incorporated into the World Bank's World Integrated Trade Solutions (WITS) is a ready-to-use tool.
  - It assess the trade, tariff revenue, and welfare effects of an FTA

Partial Equilibrium Approach (3)

- Partial equilibrium allows for the determination of the following set of indicators:
  - Changes in tariff revenue
  - Changes in economic welfare and efficiency
    - Producer surplus
    - Consumer surplus
  - Changes in exports or imports
    - Trade Creation
    - Trade Diversion

Partial Equilibrium Approach (4)

- **Advantage**: it helps us conduct an impact assessment on a specific product(s) within specific trade partners
- It is well-suited for a detailed sectoral analysis
- The model is relatively simple to use and requires a relatively simple dataset
  - Such as data for the trade flows, the tariff level, and demand and supply elasticities associated with the products concerned
- **However**, it does not consider how the trade policy change in one product sector influences other sectors of the economy
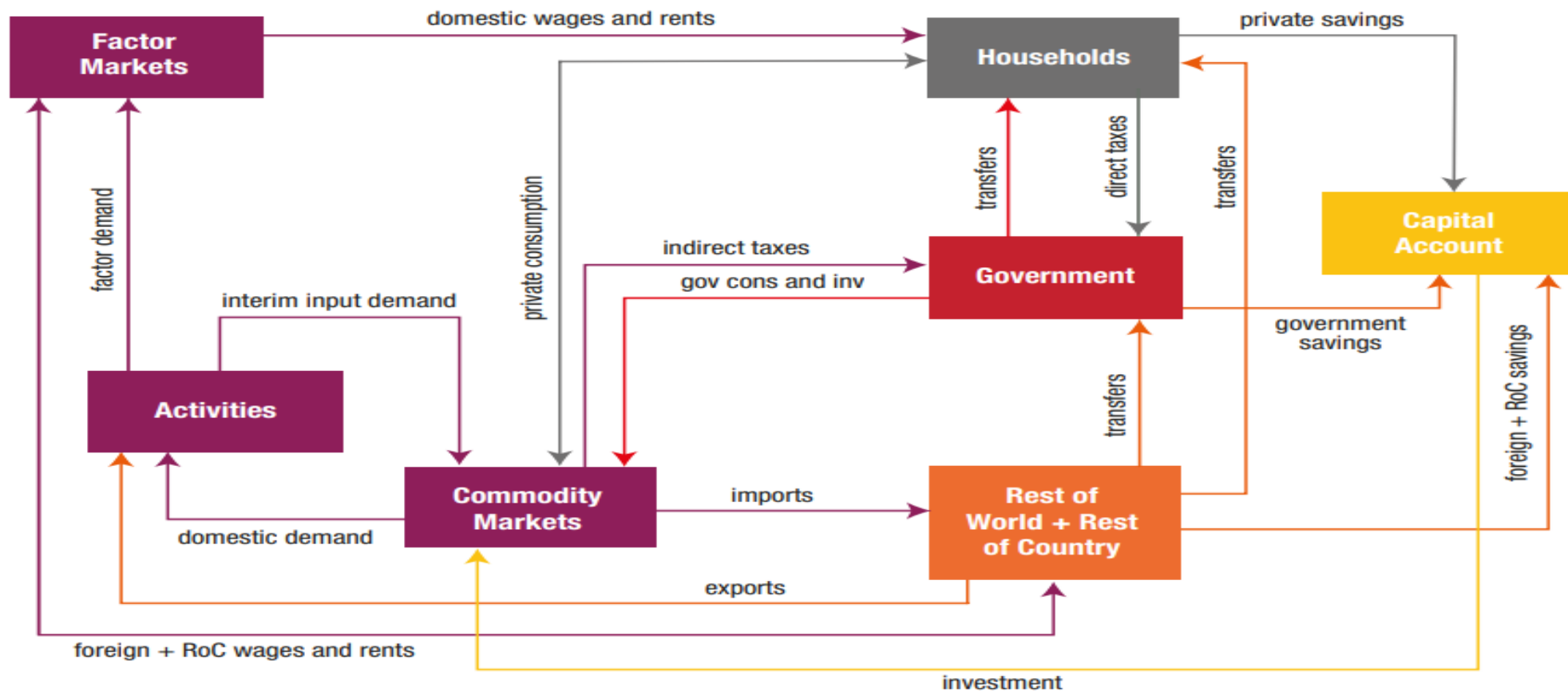
General Equilibrium Approach (1)

- The CGE model considers the impact of trade policy changes on the whole economy, including potential interactions across all markets

- The CGE model has its theoretical foundation in neo-classical trade theory underlined by the theory of comparative advantage

- The CGE is a system of equations describing an economy as a whole and the interactions among different actors broadly organized into:
  - Consumption; Production; Factor markets (i.e., capital and labor); International trade; Taxation

> **How is General Equilibrium different from Partial Equilibrium approach?**
> The partial equilibrium model does not attempt to consider economy-wide impacts (unlike the CGE model) and is appropriate where the interactions with other markets do not matter much. It is thus a useful compliment to the CGE modelling work. It is thus helpful to combine partial equilibrium analysis with the CGE analysis to better understand the product-level impact (through partial equilibrium analysis) and the cross-sectoral, economy-wide impact (through CGE analysis)

Computational General Equilibrium Approach (2)

- The conceptual starting point for a CGE model is the circular flow of economic parameters among markets and economic agents

Source: Banerjee et al. (2016).

Computational General Equilibrium Approach (3)

- The CGE models are inherently designed to undertake comparative statics
  - The standard models can only measure the simple efficiency gains of recovering the dead weight loss
- Increasingly used to assess the dynamic effects of trade liberalization
  - For example, recent models can incorporate a capital accumulation mechanism, which is induced by trade liberalization. This is the "accumulation effect" introduced in Baldwin (1992)

Computational General Equilibrium Approach (4)

- The Global Trade Analysis Project (GTAP) model, originally formulated by Hertel (1997), is the most widely used CGE model for analyzing trade policy

- The standard GTAP model is a static, multiregional, multisector CGE model

- It assumes perfect competition and constant returns to scale

- Using GTAP, a baseline analysis is done:
  - The CGE will require a baseline scenario outlining what are the likely economic effects in the absence of the FTAs
  - The baseline scenarios serves as a reference point for understanding the structure and behavior of the economy before any changes are introduced
  - The baseline scenario is then compared with the potential trade created (and diverted) because an FTA

Computational General Equilibrium Approach (5)

- Key components of a GTAP CGE Model:
  - Assumes perfect competition and constant returns to scale
  - Uses bilateral trade and investment flows – COMTRADE and UNCTAD databases
  - Uses Input-Output tables – reflects the sectoral linkages
  - Social Accounting Matrix – reflects economy wide linkages

- GTAP is suited to analyze FTAs involving the preferential liberalization of bilateral tariffs, which are likely to cause inter-sectoral effects

- The input-output tables capture the inter-sectoral indirect effects, while the bilateral trade flows capture the linkages between countries

GDyn GTAP Extension – Dynamic Framework

- GDyn Model extends the GTAP standard modeling framework to incorporate dynamic behavior

- It includes all the special features of the standard GTAP Model, for example the sophisticated consumer demands and inter-sectoral factor mobility. In addition, it includes:
  - new treatment of investment behavior
  - additional accounting relations to keep track of foreign ownership of capital

- These allow the GDyn model to determine how changes in policy, technology, population and factor endowments can affect the path of economies over time

- The estimates present percentage changes in:
  - bilateral trade
  - sectoral and regional output
  - private household and government consumption
  - foreign and domestic wealth
  - growth rates in capital

- A number of applications have been undertaken using the GDyn Model relating to the East Asian crisis, China's growth, China's accession to the WTO and land use which are available in the GDyn book and on the GTAP website.

FTA Scenario-building (1)

- Example - [Sustainability Impact Assessment in Support of the Association Agreement Negotiations between the European Union and Mercosur](#)

- This employs the dynamic GDyn GTAP Model to study the impacts of two scenarios with respect to the outcome of negotiations in terms of tariff and non-tariff measures reductions by the EU and Mercosur:
  - Conservative scenario –where liberalization in undertaken in a relatively limited scope
  - Ambitious scenario – where liberalization is undertaken more intensely by both parties

- For Mercosur, the conservative scenario assumes the elimination of tariffs in 90% of the industrial products and 80% in agricultural products. In the ambitious scenario, Mercosur eliminates tariffs in 100% of products.

- The EU eliminates tariffs in all industrial products and agricultural products in both scenarios but exception to tariff cuts exist in certain agricultural products in both scenarios

- Specific assumptions in terms of tariff and NTB reductions are applied in each policy scenario

- The model then estimates the impact on economy, society, and environment in these two scenario to assess the best possible outcome

FTA Scenario-building (2)

- Example - [Free Trade Agreements and Sectoral Adjustments in East Asia](#)

- This study evaluates the sectoral adjustments resulting from various FTA scenarios in East Asia using a dynamic global CGE model

- The following six policy scenarios are considered:
  - ASEAN-China FTA: Free trade among the ASEAN countries and China/Hong Kong
  - ASEAN-Japan FTA: Free trade among the ASEAN countries and Japan
  - China-Japan-Korea FTA: Free trade among China/Hong Kong, Japan, and Korea
  - ASEAN+3: Free trade among the ASEAN countries, China/Hong Kong, Japan, and Korea
  - ASEAN-EU: Free trade among the ASEAN and EU-25 member countries
  - Global trade liberalization (GTL): Complete abolition of import tariffs and export subsidies

Gravity Model (1)

- First proposed by Jan Tinbergen in 1962, the model's name came from its use of the Newtonian gravitational force concept as an analogy to explain the volume of bilateral trade flows

- The gravity model of trade predicts that the volume of trade between any two countries will be
  - positively related to the size of their economies (usually measured by GDP), and
  - inversely related to the trade costs between them

- Analyses the impact of trade liberations at the multilateral, regional, and bilateral levels

Gravity Model (2)

- Allows to control the effects of trade determinants – i.e., can isolate the effects of the FTA in question on trade

- In contrast to the partial equilibrium and the CGE models, they are best suited for ex-post analysis of policy changes (will be explored in later models)

- The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) maintains a Trade Analytics Portal which provides an online platform for users to run their gravity model
  - The portal allows users to quantify the impacts of a broad set of policies from tariffs to behind-the-border measures or institutional arrangements on bilateral trade flows.

Cost-Benefit Framework (1)

- The Cost-Benefit framework was developed by the OECD in 2009

- NTMs are an increasingly important policy tool particularly against a background of continued trade integration and lowering classical barriers to trade, such as tariffs and quotas

- This approach systematically assesses costs and benefits of non-tariff measures

- The analytical framework allows comparison of alternative ways to design measures and discerns their trade and welfare effects
    - For example: an import ban (or prohibitive standard) to keep the domestic market free of some undesired product characteristic can be compared to allowing trade under the condition that the foreign product be clearly identifiable (e.g. through labelling)

Cost-Benefit Framework (2)

- The cost-benefit framework is essentially a modular partial equilibrium model, with demand and supply relationships, that can be calibrated to empirical data and allowing the calculation of economic welfare effects

- The proposed methodology is operational for comparing alternative policy choices like standards, border inspections policy and labelling in an international context.

- It uses a unified analytical framework to assess the costs and benefits of measures for stakeholders along the supply chain:
    - domestic consumers
    - producers and governments
    - foreign suppliers
    - foreign consumers and governments (if and when relevant)

Cost-Benefit Framework (3)

- The central notion of the framework is to distinguish those consumers (or producers) that are concerned by the negative or positive externality and product attributes, from those that are not concerned.

- The value that concerned consumers attach to avoiding the undesired product characteristic is a key variable in the cost-benefit assessment.

- On the production side, the value of avoiding a failure is directly related to the value of the production loss that can occur if the failure remains unabated
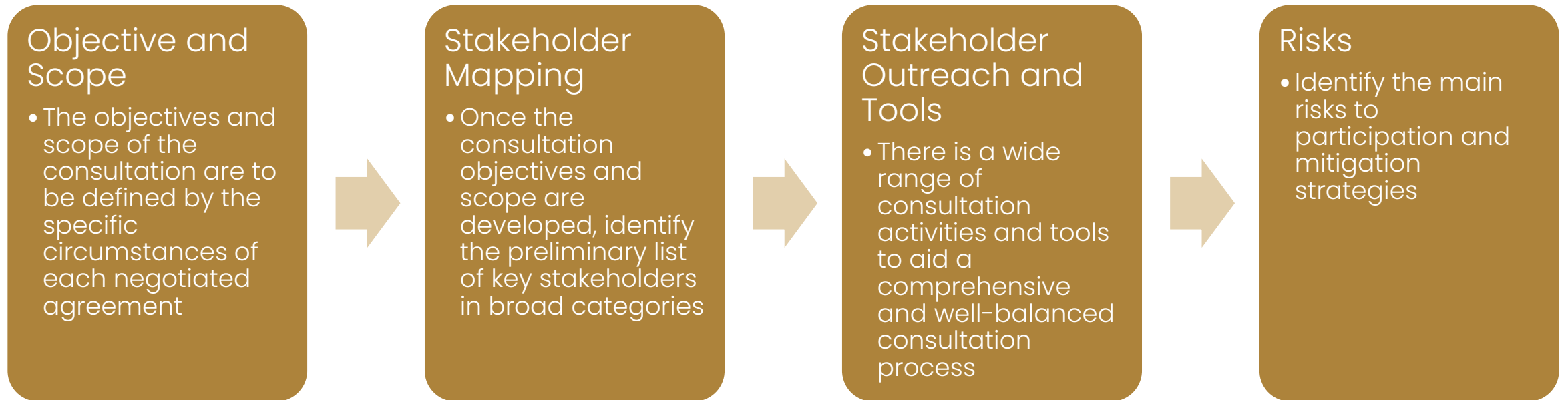
Qualitative Approach to the Impact Assessment

- Qualitative assessment is undertaken to analyse the impact of a FTA on:
  - Social issues
  - Human rights
  - Environment

Qualitative Approaches

- Various qualitative approaches can be employed during impact assessments to complement the quantitative analysis or to help address some limitations inherent in quantitative modelling

- Qualitative methods help triangulate the assumptions of CGE and undertake sensitivity analysis
  - For example, the high level of sectoral and regional aggregation used in the CGE database requires qualitative approaches to better understand the nature of the impact on various sub-sectors and regions

- Further, qualitative review is particularly relevant to NTMs impacting trade since the CGE model may not provide robust estimates of these regulatory measures

An approach of qualitative impact assessment: stakeholder consultation:

Objective and Scope
- The objectives and scope of the consultation are to be defined by the specific circumstances of each negotiated agreement

Stakeholder Mapping
- Once the consultation objectives and scope are developed, identify the preliminary list of key stakeholders in broad categories

Stakeholder Outreach and Tools
- There is a wide range of consultation activities and tools to aid a comprehensive and well-balanced consultation process

Risks
- Identify the main risks to participation and mitigation strategies

Qualitative Methods – Consultative Approach

Stakeholder Consultation

Businesses and Industry

(Questionnaires, Interviews, Meetings)

Academic Institutions

(Workshops, Interviews)

Expert Networks

(Review of Drafts, Consultations)

National Administration

(Interviews, Participation in Interview)

NGOs and IGOs

(Questionnaires, Interviews, Meetings)

Social Partners

(Questionnaires, Interviews, Meetings)

Source: UNCTAD 2021

Use of Machine Learning in Impact Assessment

- Recent developments in the machine learning and variable selection literature propose novel data-driven methods for selecting the most important provisions and quantifying their impact on trade flows

- It provides the advantage of not requiring ad hoc assumptions on how to aggregate individual provisions and offer improved selection accuracy

- Some recent works include:
  - Breinlich et al. (2021) use machine learning to evaluate impact of trade agreements
  - Regmi and Baier (2020) use an unsupervised learning method to group PTAs by textual similarity, so as to provide a more nuanced notion of the depth of PTA provisions
  - Baier, Yotov, and Zylkin (2019) use a two-step methodology where pair-specific PTA effects are estimated

Example of Impact Assessments

- Below are some examples of impact assessments conducted for several FTAs in diverse geographic regions. Please click on the link for information
- [Evaluation of the EU-SADC Economic Partnership Agreement](#)
- [EU-Australia FTA Negotiations](#)
- [Trans-Pacific Partnership Agreement: Likely Impact on the U.S. Economy and on Specific Industry Sectors](#)
- [An Assessment of the Regional Comprehensive Economic Partnership (RCEP) Tariff Concessions](#)
- [Sustainability Impact Assessment in Support of the Association Agreement Negotiations between the European Union and Mercosur](#)

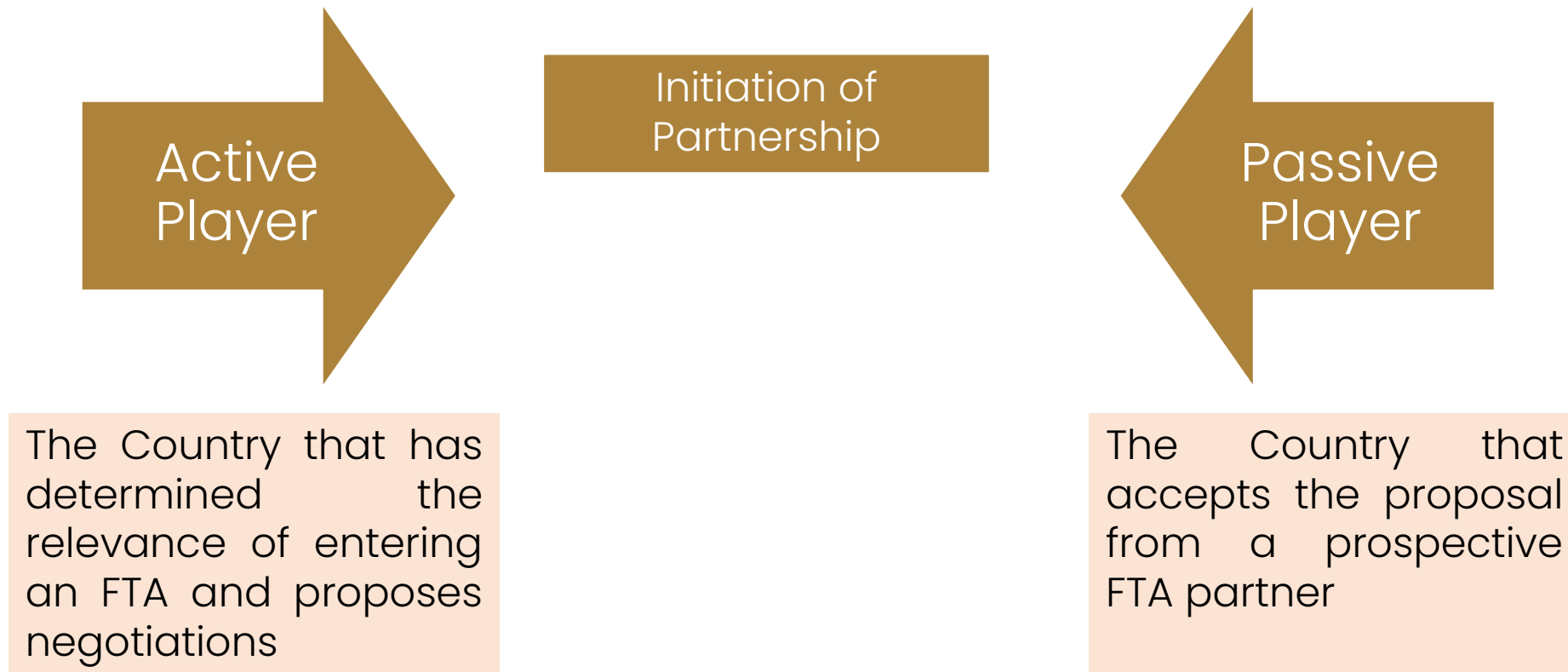# Utilizing the Results of an Impact Assessment
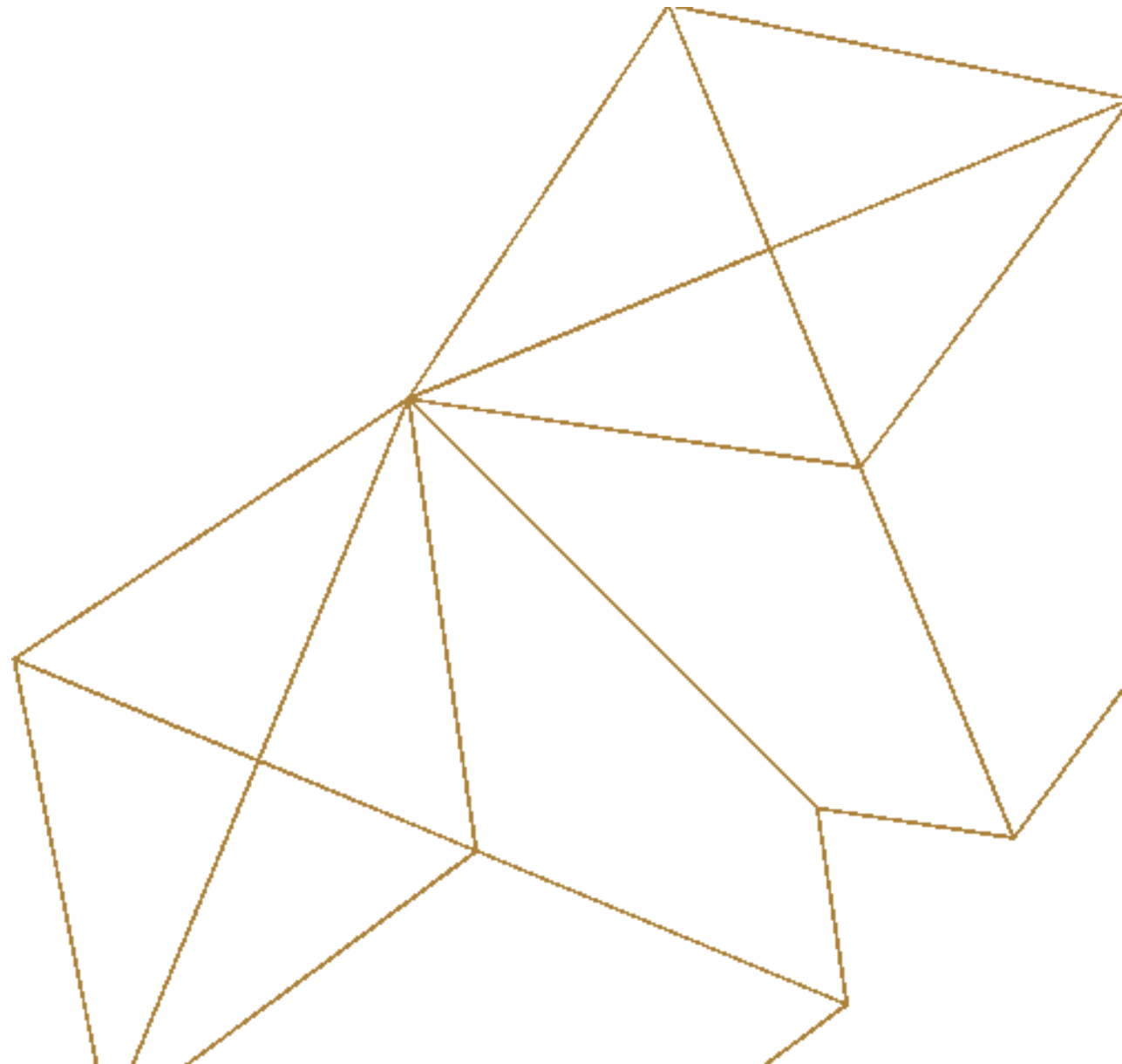
Results of an Impact Assessment

- Impact assessments produce quantitative and qualitative results that describe possible effects on economic, social, human rights, and environmental aspects

- They do not produce a clear yes/no answer to whether an FTA is good or bad

- An impact assessment may recommend the areas and the degree of concessions as well as measures for implementation

- Conclusions of an impact assessment may present opportunities and challenges

- Additionally, an impact assessment may provide backup evidence on the feasibility and effectiveness of actions to alleviate the possible negative impacts

- An impact assessment can provide policymakers with evidence, estimates, and other findings necessary for them to make informed decisions regarding whether or not to initiate an FTA or be a part of one

Initiation of Partnership Talks

Based on the findings of the ex-ante impact assessment of a FTA, a country will propose an FTA with its identified potential trade partners

Active Player

Initiation of Partnership

Passive Player

The Country that has determined the relevance of entering an FTA and proposes negotiations

The Country that accepts the proposal from a prospective FTA partner

Building the FTA Strategy

- The impact assessment acts as a key input in designing an FTA strategy

- FTA strategy lists a systematic criteria for entering into an FTA and selecting an FTA partner

- FTA strategy can be general or specific to FTA partner

Building an FTA Strategy

- General FTA Strategy:
  - It is a general framework to enter into creating an FTA
  - It includes some common objectives that the nation wants to achieve through negotiating FTAs with other nations in the world
  - It is often guided by an overarching principle like *attaining greater liberalisation, fostering economic growth, increasing regional cooperation, economic partnership enhancement*, etc

- Specific FTA Strategy:
  - In addition a general FTA strategy, specific FTA strategy is curated on a case to case basis
  - It addresses specific objectives either with respect to a particular country or industry or both
  - It takes into account the particular conditions of the give FTA negotiations

Key Takeaway Points

- An ex-ante impact assessment is a comprehensive process that enables governments, businesses, and the public to make informed decisions about the potential benefits and risks associated with the FTA.

- It helps to ensure that the FTA aligns with the broader economic, social, and environmental goals of the participating countries

- It acts as a key input for countries to identify their negotiating objectives, build strategies, secure a negotiating mandate and steer the negotiations

- With pre-existing low average tariffs, impact assessment increasingly focus on assessing the impact of liberalizing NTMs through regulatory cooperation under an FTA

- These assessments can be undertaken using both qualitative and quantitative approaches with each having several applied tools and methods