

## Concept of economic diversification in the context of response measures

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### Emergence of understanding of ED under SB work

- 2000 • Acknowledgement as potential mean to address impact of implementation of response measures
- 2003 • Impact of climate change and role of economic diversification
- 2006 • Role of economic diversification and sustainable development
- 2013 • In-forum WS to share views and experiences and opportunities
- 2016 • Technical paper preparation (understanding the economic diversification with concept and guidance)



### Views expressed in the workshops



- Economic Diversification goes beyond addressing impact of climate mitigation policies (response measures)
- Achieves other objectives of sustainable development
- Lowers vulnerability to impacts of climate change



### Views expressed in the workshops cont...



- Sector specific discussions
  - Identify risk sectors, informed by modelling tools
- Technical assistance for good policy formulation
- requires clear understanding of institutional and capacity improvement needs
- Blue print of institutional and capacity improvement needs
- Followed by international support



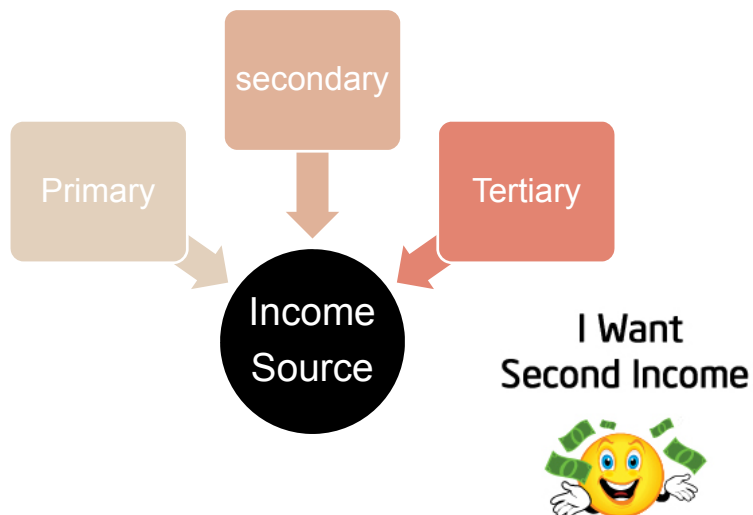
## Views from the workshops



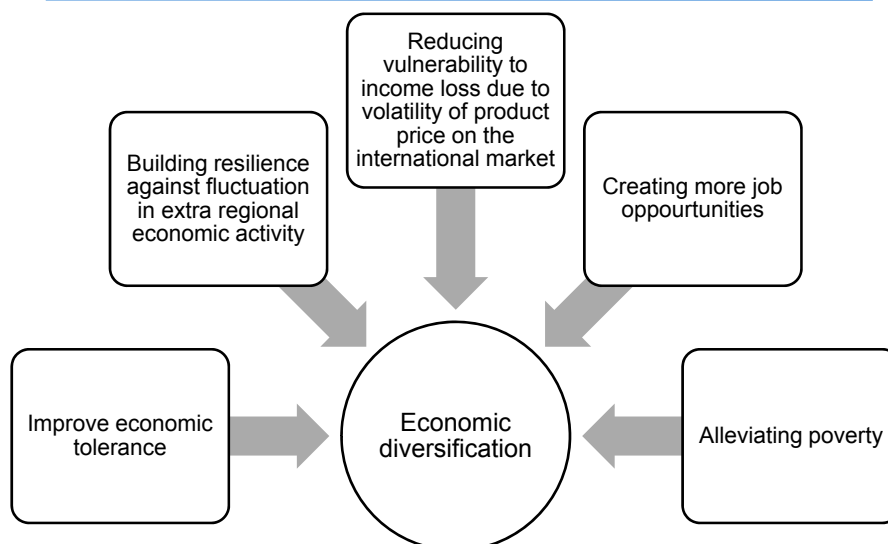
- International cooperation
  - Sharing of best practices and experiences
  - Identify non domestic barriers to ED
  - Ways in which international community could facilitate foreign investment in non-traditional sectors
  - Facilitate technology transfer, technical assistance and financial support



## Economic diversification a concept



## Economic diversification and sustainable development

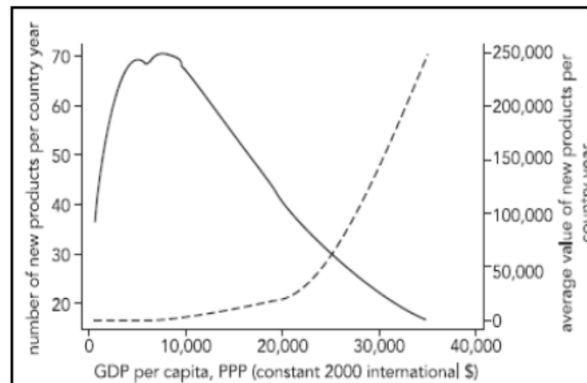


## Drivers of economic diversification

Determinant	Impact on economic/export diversification
<b>Economic reforms:</b>	
Trade liberalization and access to finance	Positive driver of export diversification at both intensive and extensive margins, including unilateral trade liberalization
<b>Economic determinants:</b>	
Income (gross domestic product (GDP) per capita) and productivity	Positive; quadratic relationship between the Theil index and GDP per capita is mainly driven by the extensive margin
<b>Macroeconomic variables:</b>	
Real exchange rate, inflation, terms of trade and preferential market access	Preferential market access has an impact on both intensive and extensive margins
Net inflows of foreign direct investment (as percentage of GDP)	Concentrates export value on some products and thereby increases concentration on intensive margin
Investment as a share of GDP	Positive
<b>Structural factors:</b>	
Country's population, human capital, quality of institutions and education	Quality of institutions, larger population and education have positive impacts; about 10 per cent increase in years of schooling decreases Theil index by 1.1 per cent and number of products
Infrastructure	Better infrastructure increases diversification on both



## Diversification in respect of economic growth



## Tools and methods for measuring economic diversification

Method	Basis of making judgment on diversification	Relationship between index and diversification
Herfindahl-Hirschmann and ogive indices	Equal distribution of employment across sectors is the highest benchmark of diversification	The lower the value, the more diversified the economy
Entropy index (Shannon entropy index)	Equal distribution of employment across sectors is the highest benchmark of diversification	The higher the value, the more diversified the economy
Hachman index and location quotient	The resemblance of the employment distribution of a State or region to that of the nation is a measure of economic stability	The higher the value, the more stable the economy; a sector with a high value is an export sector
National average index	A region's share of stable or unstable sectors is a measure of economic diversity	As the region's share of economic activity approaches the country's share for all sectors, the index approaches zero
Portfolio variance	Captures the characteristics of individual industries, and inter-industry relationships with regional growth and instability	The lower the variance, the more diversified the economy



## Tools and methods for measuring economic diversification

Input–output matrix	Economic diversification is viewed as driven by simultaneous changes in production, consumption and trade patterns	Diversification may be expedited by forces of unbalanced growth, especially the faster growth of sectors with high income elasticity of demand
Input–output model: a unified framework	Compares the growth and stability impacts of diversification strategies involving changes in the level and mix of exogenous final demands	Determines the growth and stability impacts of different diversification strategies, resulting from changes in input–output relationships in the input–output matrix



## Measuring ED: Right tool for Policy Makers

- Concentration ratio and HHI are the simplest and most affordable
- Absolute measurement methods are better than relative
  - a) Account for new projects
  - b) Accounts of difference in products in two countries
- Summary methods better than discrete methods
- HHI satisfies most of the axioms for effective measurement of export concentration.

$$\text{Herfindahl – Hirschmann index} = \sum_{i=1}^n s_i^2$$

### Focus on local industries

- Location Quotient
- LQ with size of industry and no. of jobs



## Mitigation policies and impacts

### Selected response measures and their impacts

<i>Policy</i>	<i>Key impacts</i>
Domestic carbon taxes and cap-and-trade schemes	Loss of market share for foreign exporters of conventional fuels
Subsidies for renewable energy technology producers	Loss of market share for foreign competitors (renewable energy technology and conventional fuels)
Standards and labelling requirements	Loss of market share for producing firms
Border carbon adjustment	Loss of market share for foreign exporters in energy-intensive trade export sectors
International carbon taxes or levies	On aviation: loss of tourism revenue for airline destinations and loss of market share for air-freighted goods  On maritime transport: reduced trade flows



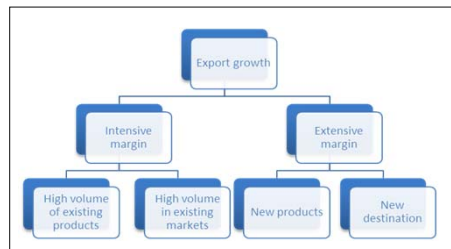
## Sectors impacted

- Conventional oil, gas and coal fuels;
- Energy-intensive trade-exposed goods (aluminium, iron and steel, cement, chemicals, and pulp and paper);
- Tourism;
- Agriculture.

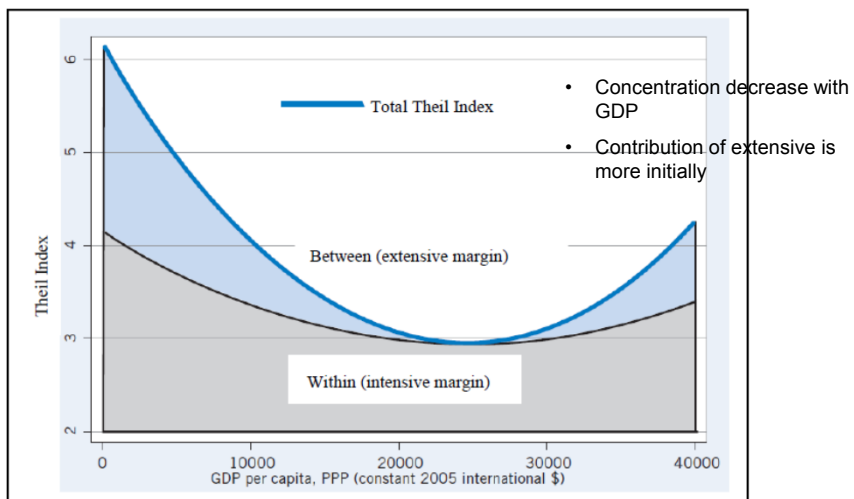


## Strategies for economic diversification

- Import substitution or export-led policy?
- Soft or hard industrial policy?
- Special economic zone
- Extensive or intensive margin?



## Contribution of Intensive and extensive margin

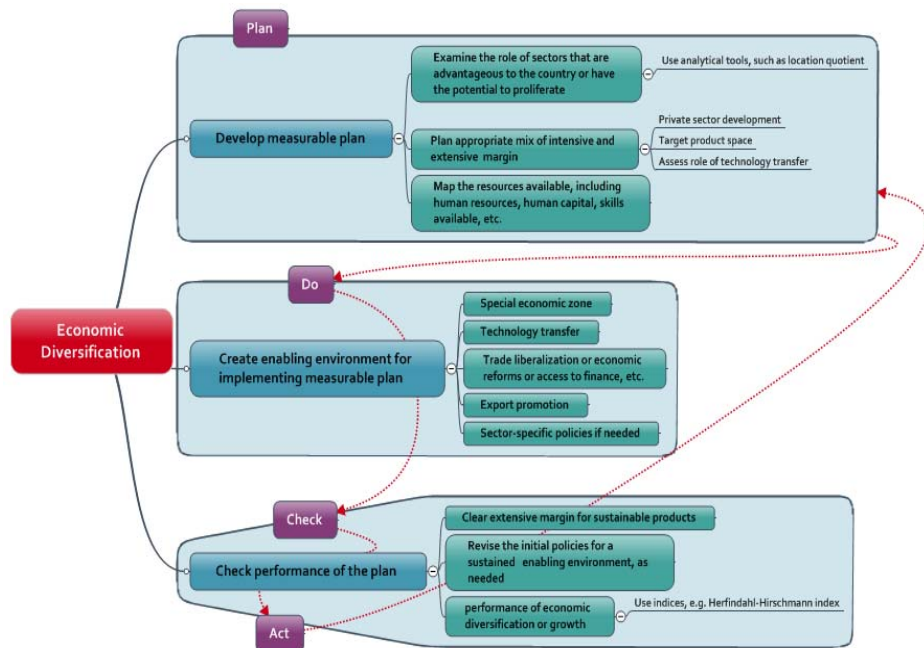


## Where to start Diversification

- Product Space Theory
  - a) branch out to new products that are not too distant in product space
  - b) Distance is assessed by means of observed patterns of relationships.
  - c) E.g. sanitation equipment can export refrigeration equipment,
  - d) the stronger that empirical relationship the closer the goods are to each other in product space



## Action Chart



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## Technical Paper-Key messages

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- Scope of diversification is high for less developed countries but the domestic and non-domestic barriers need to be addressed
  - Economic diversification is only one of the means, is a challenging task
  - Most of the existing work is on understanding drivers, development of tools and methods for quantification but
    - is very limited on implementation, lessons learnt or experience from countries
  - A few of analytical tools can be used for facilitating policies planning
  - Government interventions are necessary
  - Finding from world bank experience: success to ED is to get the fundamentals right:
    - Invest in people, especially in education in all levels
    - Maintain macroeconomic stability
    - Invest in infrastructure
    - Improve the business climate
    - Encourage private investment
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## Future reference

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Paper available at

<http://unfccc.int/resource/docs/2016/tp/03.pdf>

Presentation will be available at

[www.unfccc.int/9973.php](http://www.unfccc.int/9973.php)

THANK YOU

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