



Globalization Study “DHL Global Connectedness Index 2011”

The DHL Global Connectedness Index 2011 analyzes data of 125 countries and territories across 10 different types of flows from 2005 to 2010. In 2010, these countries and territories accounted for 98% of the world’s GDP and 92% of its population. *Nearly one million data points were used to produce the index over this six year period.*

The methodology used in the DHL Global Connectedness Index (GCI) enables it to distinguish countries that truly have high levels of *global* connectedness from those that only have deep connections to a small set of partner countries. It also distinguishes the DHL GCI from prior research in this area.

Expertise

Globalization has created new opportunities for countries worldwide, and is likely to set the stage upon which many other global issues will unfold. As such, DHL decided to look for a deeper understanding of this core transformation, recognizing that reliable data and a fresh scholarly approach would help enlighten the debate. DHL secured the expertise of Professor Pankaj Ghemawat, the renowned economist and global strategist, for this study.

Construction of GCI

Below is a summary of the methodological decisions in constructing the DHL Global Connectedness Index.

1. Selecting Aspects of Connectedness to Measure

For the purposes of constructing the DHL Global Connectedness Index, the starting point was the definition of global connectedness: *Global Connectedness refers to the depth and breadth of a country’s integration with the rest of the world, as manifest by its participation in international flows of products and services, capital, information and people.*



Connectedness in GCI was measured from the actual flows that take place between and among countries, which allowed the index to be generated based solely on hard data, rather than input from qualitative surveys.

The definition of global connectedness used in the GCI identified four specific categories of flows, and within those four flows, were 12 components. Each component was weighted as a percentage; these weights reflected the author's judgement of the relative importance and value of each pillar and component to the overall evaluation of global connectedness:

- a) Trade flows (products and services) – 35%
 - Merchandise Trade – 75%
 - Services Trade – 25%
- b) Capital flows (investment) – 35%
 - Foreign Direct Investment (FDI) Stocks – 25%
 - Foreign Direct Investment (FDI) Flows – 25%
 - Portfolio Equity Stocks – 25%
 - Portfolio Equity Flows – 25%
- c) Information flows – 15%
 - Internet Bandwidth – 40%
 - Telephone Call Minutes – 40%
 - Trade in Printed Publications – 20%
- d) People flows – 15%
 - Migrants (foreign born population) – 33%
 - Tourists (departures and arrivals) – 33%
 - International Students – 33%



2. Defining Metrics

The metrics used to measure the above flows were **depth** and **breadth**.

Depth refers to the size of a country's international flows as compared to a relevant measure of the size of its domestic economy, (i.e., how important or pervasive interactions with the rest of the world are in the context of business or life in a particular country.) To implement these depth metrics, a relevant measure of a country's domestic economy must be selected as the basis of comparison for each type of flow:

- **GDP** used to compare depth for: Merchandise Trade, Services Trade, Foreign Direct Investment (FDI) Stocks, Portfolio Equity Stocks, Portfolio Equity Flows
- **Gross Fixed Capital Formation** used to compare depth for: Foreign Direct Investment (FDI) Flows
- **Internet Users** used to compare depth for: Internet bandwidth
- **Population** used to compare depth for: Telephone Call Minutes, Trade in Printed Publications, Migrants, Tourism
- **Tertiary Education Enrollment** used to compare depth for: International Students

Breadth measures how closely a country's distribution of international flows across its partner countries matches the global distribution of the same flows in the opposite direction. The breadth of a country's merchandise exports, for example, was measured based on the difference between the distribution of its exports across destination countries versus the rest of the world's distribution of merchandise imports.



3. *Accounting for Missing Data*

Given the very large data requirements, there were many cases where the targeted data was unavailable; therefore, three methods were employed to generate the index in spite of missing data:

- Exclusion of some components from the breadth analysis
- Adjusting weights to account for missing countries for specific components
- Filling gaps via interpolation and repetition

4. *Making the Metrics Comparable (Normalization)*

To make the data and diverse metrics comparable, each distribution was converted into its corresponding percentile ranks over the period from 2005 to 2010. To make results more intuitively understandable for readers, after adding up the weighted scores, depth and breadth scores were re-scaled on a scale of 0 to 50. Then they were simply added together to produce the final DHL Global Connectedness Index, with possible scores ranging from 0 to 100.

The DHL Global Connectedness Index is available to download at:

<http://www.dhl.com/qci>