

## **FUTURE TRADE GROWTH AND IMPLICATIONS OF ECONOMIC CONVERGENCE BETWEEN REGIONS FOR PRIMARY ENERGY DEMAND**

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### **Abstract**

Following the GFC, growth in global trade has been sluggish with recent trade tension providing doubt as to whether these trends will change any time soon. The paper looks at possible alternative future trade growth scenarios and the implications of economic convergence between regions for primary energy demand, and what these may mean for trade policy formation at the national, regional and global levels.

To examine alternative trade growth scenarios, the paper utilizes the GDyn-FS model, a multi-sector, multi-region recursive dynamic computable general equilibrium model of the global economy. This model combines the economies of individual regions through multi-lateral trade, associated transport services and capital-finance flows. Over the forward period to 2050, projections of population, employment and output are drawn from IMF World Economic Outlook estimates, ILO labour market projections together with long-run projections that follow the medium growth scenario of Shared Socioeconomic Pathway projections (SSP2). Saving and trade balances as a share of GDP are modelled as gradually adjusting to longer-run target measures based on historical trends, empirical analysis and theory.

The projections suggest that under such a growth scenario and subject to regional balance of payments constraints based on historical data, global exports could expand to reach around 36 percent of global output by 2050 from the current level of around 30 percent. The projections also suggest a substantial pivot in trade and investment towards economies outside of the Europe 28, China, Japan, USA group. Accompanying such a pivot is a gradual convergence of per-capita incomes of low and middle income economies towards levels attained by higher income economies. Such convergence would entail substantial increases in primary energy consumption. For example, a comparative analysis indicates an increase in per capita energy consumption in non-OECD countries to OECD rates would imply a more than doubling of global energy demand and use.

Such an energy transition would place a premium on cooperative research at a global scale on energy supply technologies capable of meeting global demand within global resource constraints and without imposing undue stress on the natural or built environments. It would also place a premium on: (i) availability of intellectual and physical capital to meet emerging energy demands across regions; (ii) non-discriminatory multi-lateral, plurilateral and open regional institutions that promote cooperation and a non-discriminatory order globally; and (iii) domestic policies that foster productivity and lower costs of trade across all markets.