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The Structure and Dynamics of Economic Complexity

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Can network science help us understand the structure and evolution of the global economy? In this talk I summarize recent research that uses networks and complexity science to describe and explain the evolution of the mix of products that countries, and cities, produce and export. First, I show how to use information on the network connecting industries to locations to measure the complexity of an economy. Using these measures I demonstrate that countries tend to approach a level of income that is dictated by the complexity of their economies. Next, I study the evolution of economic complexity by showing that it is constrained by a coordination problem that countries, and cities, deal with using three different channels: First, they move to products that are close by, in the Product Space, to the products that they already do. Second, they are more likely to develop a product if a geographical neighbor has already developed it. And third, they follow the nestedness of the network connecting industries to locations. Finally, I introduce a simple model to account for the stylized facts uncovered in the previous sections.