

**Innovation Leadership:
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Securing National Prosperity

- Prosperity is a function of the value that an economy is able to both create and appropriate
- Key drivers of national prosperity has been argued to be complete and well-functioning institutions, capital accumulation, free trade, efficient markets, personal initiative, an appropriate role for government.
- Networks of regionally clustered businesses and institutions provides for both formal exchanges of knowledge through market relationships, where proximity allows the establishment of closer ties; and informal exchange of knowledge in social networks of individuals.
- Pecuniary externalities are a by-product of market interactions in imperfectly competitive markets in the presence of market mediated linkages.
- **The conclusion is that the presence of attractive, well-functioning, well internally and externally connected agglomerations up until and including large cities is an increasingly important driver for the creation of value that underpin national prosperity.**

The ability to capture this value is increased if a large share of the economy has managed to achieve non-price based competition on the global market, which requires the ability to produce goods or services that cannot be produced by anyone else and for which there is a high demand.

- Economic complexity analysis has been developed as a method to identify current export capability as well as predict future economic growth
- The core concept of economic complexity is that specific products are produced when a combination of different resources (e.g. monetary, physical, relational organisational and knowledge) are deployed in a, for the economy, unique way.
- The economic complexity theory proposes that since physical endowment resources and monetary resources are scarce, the growth of available knowledge will determine the amount of new products that can be produced, specifically for export, in an economy.
- It is the differentiation of primarily knowledge capital between economies that will contribute to shaping a specific economy's economic complexity.
- The economic complexity of an economy is, as indicated above, also influenced by: relationship capital e.g. cultural propensity to collaborate, the extent to which firms participate in global value chains, the extent to which firms are involved in export activities, network and agglomeration economic effects due to the density of economic agents, etc.; and organisational capital e.g. institutions, institutional structure and stability, policy landscape and the predictability of this landscape, available information, etc.
- Due to the difficulty in capturing these two forms of capital they are not taken into account in the economic complexity modelling and hence economic complexity can only explain about 70% of the prosperity development (or economic transformation) in an economy, using r^2 as a measure.

Knowledge is Key

- **The amount of knowledge capital in an economy can be expressed in terms of how many different products are exported by an economy (labelled diversity) and how common, across all economies, the export of a given product exported by the economy is (labelled ubiquity).**
- **Diversity captures the breadth of the knowledge base of an economy and ubiquity captures both how close (or far from) to the knowledge frontier the economy is as well as if the economy has all the requisite knowledge for producing a given product.**
- **The more products you are able to export both in absolute terms and as a share of the products produced, and the fewer other economies are able to produce and export these products the more value can be captured by the economy.**
- **This information is captured in the economic complexity level articulated from, and grounded in, the diversity and ubiquity of the economy.**
- **From the above discussion it is clear that achieving a high level of economic complexity means that a large share of firms will have achieved non-price based competition. This in turn means that we need to understand how non-price based competition is being achieved.**

National prosperity generation can be strengthened by filling structural holes

- Normally by attracting and introducing partners coming from ecosystems whose knowledge and resources are locally lacking.
- The benefit of doing this within an otherwise large network structure are proportional to the collaboration propensity between the agents in the network

Non-price based competition is most commonly observed in high-cost production locations.

- Firms operating in such locations have developed a series of inimitable strategies in response to price-based competition

Inimitability Strategy	Low-tech Manufacturing Firms	High-tech Manufacturing Firms	Consumer Goods Providers	Industrial Goods Providers	Consumer Service Providers	Industrial Service Providers
Customisation through co-production	X			X	X	X
Bundling (products or products with services)		X		X		
Superior skills or unique craftsmanship			X		X	
Provenance	X	X	X	X		
High Responsiveness	X	X	X	X	X	X
Superior experience	X	X	X	X	X	X
Unique and protected production processes		X	X	X		
Intrinsic and/or extrinsic value delivery	X	X	X	X	X	X
Design based innovation	X		X		X	X
Art based innovation			X		X	
Reverse-hermeneutics based innovation			X		X	
Science & technology based innovation		X		X		X

- On a resource basis inimitability can arise from:
 - property rights;
 - path dependencies in resource accumulation
 - time compression diseconomies in resource accumulation;
 - causal ambiguity
- Causal ambiguity can be further broken down into:
 - resources resulting out of organisational processes unobservable from the outside;
 - tightly coupled resources where the interrelationship and mutual synergistic effects are unobservable from the outside;
 - processes that are a combination of simple heuristics with idiosyncratic and real-time improvisations are in practice both unobservable from the outside and uninferable from any outcomes
- Further grounds for inimitability can arise out of the specific choices made as relates to which resources are leveraged in what specific way:
 - Moderately linked core and complementary resources (normally with the aim of maintain strength in existing markets and to leverage into new markets by substituting for different complementary resources);
 - Mundane resources with tight mutually reinforcing linkages (normally with the aim of forming a defensible strategic position)
 - Loosely linked, semi-structured processes comprised of simple and improvised action (normally with the aim of seizing narrow windows of opportunity).

Non-price based competition have its root in organisational (frequently information) and human (frequently knowledge in an explicit or tacit form and frequently embodied in behaviours and characteristics) resources.

- **This is facilitated by deploying individuals with a connectivist or autopoietic epistemological paradigm.**

Conclusion

- The continuous maximisation of national prosperity is a critical objective as a means of achieving other societally desirable outcomes.
- The ability to create this national prosperity is increased if a large share of the economy has managed to achieve non-price based competition in the global market, which requires the ability to produce goods or services that cannot be produced by anyone else and for which there is a high demand on the global market.
- National prosperity is then a function of how large a part of the economy has the ability to produce these type of goods.
- The economic complexity index captures the breadth of the knowledge base of an economy and both how close to (or far from) the knowledge frontier the economy is as well as if the economy has all the requisite knowledge for producing a given product. Hence the higher the economic complexity the larger the share of the economy that is likely to be able to achieve non-price based competition and the larger the ability for that economy to generate national prosperity.
- The ability to create new knowledge that will contribute to the breadth of existing knowledge and that will enable the production, as an economy, of goods not possible for others to produce is enabled by large networks of agents with strong mutual connections allowing for the achieving of scale benefits, speed benefits, complementarity benefits, and knowledge sharing benefits. Hence the bridging of structural holes in the existing networks, the enlarging of these existing networks, the establishment of new networks, and increasing the collaborative propensity will all contribute to increasing the economic complexity by developing new knowledge with a high degree of inimitability when deployed by economic agents.
- This inimitability is normally grounded in property rights, path dependencies, time compression diseconomies in resource allocation and causal ambiguity linked to resource transformations, specifically non-price based competition have its root in organisational (frequently information) and human (frequently knowledge in an explicit or tacit form and frequently embodied in behaviours and characteristics) resources and their associated transformation.
- **This means that national prosperity requires economic agents that are successful in achieving a non-price based position grounded in inimitability achieved through resource transformations involving organisational and human resources, interconnected on all scales, managed by individuals with a connectivist or autopoietic epistemological paradigm.**