

The Method of Economic Fitness

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Abstract:

Economic Complexity and the Fitness Method represent a new field of research that consists in a radically new methodology. It describes economics as evolutionary process of ecosystems made of industrial and financial technologies that are all globally interconnected. This offers new opportunities to constructively describe technological ecosystems, analyse their structures, understand their internal dynamics, as well as to introduce new metrics. This approach provides a new paradigm for a fundamental economic science based on data and not on ideologies or interpretations. One characteristic is to go from the many parameters of the standard economic analysis to a new methodology with zero parameters. This dimensional reduction is essential for a novel approach to the analysis and forecasting beyond the standard regressions [1].

The Fitness methodology has been extensively adopted by the IFC-World Bank which has already analysed more than 50 countries and also made various applications in the private sector.

From the matrix of the products which a country produces a suitable iterative algorithm extracts the Fitness of Countries and the Complexity of the Products. The dynamics in the new GDP-Fitness space [2] opens up to a completely new way for monitoring and forecasting. Then, the taxonomy of products and their evolutionary dynamics is built through machine learning methods. Finally, the same thing is applied to patents and technologies, defining the Technological Fitness. The interrelations between products and technologies are two basic elements that open up the possibility of analysing the core elements of the innovation process.

A particularly interesting fact we will discuss is a new perspective on the fantastic economic growth of China, which has eluded most of the standard methods of analysis for the past twenty years (<https://www.quora.com/profile/Godfree-Roberts>). We will also consider its potential for further developments.

In a collaboration with IFC-World Bank we have presented a detailed comparison of the GDP forecasting based on the Fitness methodology with the standard IMF forecasting [3]. According to a recent report by Bloomberg Views: The new Fitness method “*systematically outperforms standard methods, despite requiring much less data*” [4].

References

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- [2] M. Cristelli, A. Tacchella, L. Pietronero: *The Heterogeneous Dynamics of Economic Complexity*, PLOS One 10(2): e0117174 (2015) and Nature editorial 2015: <http://www.nature.com/news/physicists-make-weather-forecasts-for-economies-1.16963>
- [3] <http://documents.worldbank.org/curated/en/632611498503242103/On-the-predictability-of-growth>
- [4] <https://www.bloomberg.com/view/articles/2017-10-01/a-better-way-to-make-economic-forecasts>