

PROPOSAL: ECONOMICS AND GEOGRAPHY: DEVELOPING GEOPHYSICAL MEASURES OF INCOME AND OUTPUT

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The G-Econ research project is devoted to developing a geophysically based data set on economic activity for the world. The current data set (GEcon 1.3) is now publicly available and covers “gross cell product” for all regions for 1990, which includes 27,500 terrestrial observations. (See the web site at gecon.yale.edu.)

Preliminary results have shown that it is possible to measure global economic activity on a finer scale than has been done up to now; approaches such as the G-Econ data allow more uniform measurement, produce greater spatial resolution by a factor of 100, and allow better linkage of economic data to geographic data. Second, the data reveal a pattern in which the density of economic activity is very strongly related to geographic conditions, especially temperature, precipitation, and coastal proximity. Third, applying the data to the tropical Africa, we estimate that Africa’s geography is indeed a major economic disadvantage relative to temperate countries, but Africa’s geography is only marginally disadvantageous relative to other low-latitude regions.

Student projects will involve further development of the data and undertaking analyses of the relationship between geography and economic activity. The research would depend upon a student’s background and research skills. Possible topics would include working on individual countries, improving the resolution using luminosity data from satellites, and improving the methodology of spatial rescaling. Helpful research tools are Excel, GIS, ArcView, and EViews or other statistical programs.

Students would benefit by improving their research skills and learning about the substantive role of geography in economic development.