Diffusion of environmental awareness: experience from Russia

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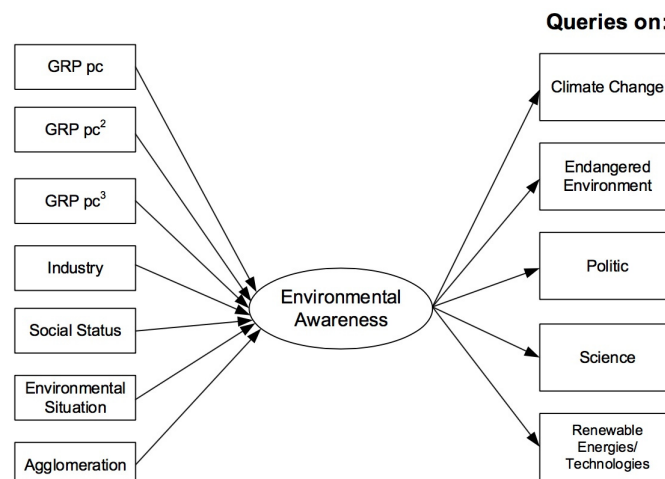[2]TU Dresden, Dresden, Germany
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In December 2015, the parties to the Kyoto Protocol reached an agreement for reducing anthropogenic greenhouse gas emissions – after years of negotiations. The success of this agreement depends substantially on the willingness of the participating countries to realize their "Nationally Determined Contributions". A high level of "environmental awareness" in the population will certainly affect this willingness in a positive way. The necessity arises, to investigate the diffusion of "environmental awareness", and also the (economic) factors, on which this diffusion depends.

This paper addresses these questions for the regions of the Russian Federation. The 82 regions are sufficiently diverse regarding cultural and economic issues, such that interesting conclusions can be expected. Moreover, Russia is still among the largest emitters of greenhouse gases in the world.

A relevant question refers first to the abstract concept of "environmental awareness" itself: how to define it? how to measure it? We make use of the "Multiple-Indicator-Multiple-Causes" (MIMIC) approach, which is based on a variety of indicators for environmental awareness and a variety of causes, potentially influencing this awareness. In our model the indicators $(y_1,\ldots,y_n)$ are queries of relevant environmental phrases from the Russian internet search engine Yandex. In addition, observable "causes variables" $(x_1,\ldots,x_m)$, such as the gross regional product per capita (GRP pc) are needed to explain the latent variable η, the environmental awareness.

We thus obtain the following path diagram illustrating the MIMIC model with the specifications of the causes and the indicator variables:

The goals of the paper are now to provide information on the status and the development (diffusion) of the environmental awareness in the Russian regions in the following sense:

a) The diffusion of environmental awareness η^R_t in region R of the Russian Federation over a period of years t.

b) The dependence of the diffusion on the level of GRP per capita: $\eta^R_t = \eta^R (GRP^R_t pc)$; this corresponds to the idea of an environmental Kuznets Curve.

c) The ranking of the Russian regions according to the level of environmental awareness and the changes over the periods of time.

The results will therefore allow some insight into the diffusion of the concept of "environmental awareness" depending on the economic development in the various regions of the Russian Federation.