SUSTAINICUM COLLECTION
LEHRMATERIALIEN FÜR BILDUNG ZUR NACHHALTIGKEIT

Quantifying Sustainability: how data modelling and analytics help in understanding sustainable development

(Resource ID: 278)

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This teaching resource is allocated to following University:
UC - Universum College

Institution:
Universum University College

http://www.sustainicum.at/en/modules/view/278.Quantifying-Sustainability-how-data-modelling-and-analytics-help-in-understanding-sustainable-development

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Group work

Less than 5 students

Up to 3 lecture units

Internet connection necessary

English, Shqip

These learning instructions and materials will help students in assessing the level of sustainable development in Kosovo with the assistance of quantitative tools and methods. By using data and measuring indicators at different levels, students will be able to analyze the relationship between economical, environmental and societal variables that facilitate sustainable development. Moreover, students will cooperate with local research institutions that have studied different topics related to sustainable development and learn about the methodology used in their studies.

In order to be able to quantify, analyze and create an overview of the level of sustainable development in Kosovo, students will be provided with data available from the World Bank Development Indicators, the Central Bank of the Republic of Kosovo, the International Monetary Fund, and the Kosovo Statistics Agency. A number of previous studies that have dealt with the topic of sustainable development in Kosovo will also be analyzed in order to extract from them any specific statistics produced in these studies.

Furthermore, students will be introduced to the 2030 Agenda for Sustainable Development and analyze the Sustainable Development Goals. A set of indicators that capture the goals will be released by March 2016, and students will analyze this data in order to evaluate how well they capture or describe all 17 sustainable development goals proposed by United Nations.

Indicators such as GDP or GDP per capita, unemployment rate, foreign direct investments, private sector growth, trade balances, Gini and other inequality indicators are important traditional measures but also have limitations when it comes to assessing sustainable development. Therefore, students will complement their data indicators with additional indicators to be published by March 2016. These indicators will include data for e.g. proportion of the population living below the national poverty line, prevalence of malnutrition, health worker density and distribution, percentage of population using safely managed drinking water services, total government spending in social protection and employment programmes as a percentage of the national budgets and GDP, CO2 emission per unit of value added, ect. All additional data will capture the global level at which development goals are reached, and will be segregated to describe the three pillars of sustainability, economic, social and environmental development.

An important step in understanding and assessing the sustainable development for a country such as Kosovo, is designing the appropriate model to measure the dimension of development. A vast number of models have been designed and tested to capture the dimension of sustainable development over different dependent variables. In this sense, students are encouraged and expected to learn about different modelling techniques, starting from the most common ones such as regression models and think of variables which may significantly impact the sustainable development in Kosovo. By doing so, students will be stimulated to analyze the factors that enhance growth and development in Kosovo and search for the appropriate data that is needed to form the variables.

The work plan consists of three phases: data collection and presentation

described in the first paragraph, modelling and analytics described in the second paragraph, and finally a field study and research at the Central Bank of Kosovo, the World Bank Office in Kosovo, and the KOSID (Kosovo Civil Society Consortium for Sustainable Development) where students will observe how assessing quantitative models helps in assessing growth and sustainable development. At the end of the field study at the three institutions, students will provide a report on quantitative models that are used to estimate the relationship between socio-economic, institutional and environmental indicators, and their long term impact on sustainable development. Students are also expected to criticize and identify the shortcomings of quantitative models, as well as to recommend alternative solutions for assessing sustainable development in a country.

Teaching Tools & Methods


Mini-project


Written material

Integration of Social Stakeholders

The World Bank has conducted numerous studies on sustainable development. Meanwhile, by working with World Bank staff in Kosovo, students and the staff will benefit from a research oriented field study. KOSID as a civil society body can also offer a hands on approach into the issue of studying sustainability as previously this organization has been involved in many development projects and studies. Kosovo's Statistics Agency and the Central Bank of Kosovo will serve as data providers for the study purposes.

Strength

- Research oriented learning style
- Unique opportunity for students to be involved with stakeholders in assessing sustainable development
- Curriculum that incorporates technical and conceptual skills
- Opportunity to use and create skills by handling large data sets
- Opportunity to use statistical tools and packages

Weakness

– A degree of quantitative skills must be a pre-requisite, which may leave out first year students
– Data loaded and difficult to be executed without proper technical supervision

Learning Outcomes

– LT1: Able to understand the theoretical and technical aspects of sustainable development
– LT2: Able to collect and present data that help in building variables which assess the degree of sustainable development
– LT3: Able to measure, test and analyse the factors that enhance sustainable development in a country
– LT4: Able to understand the role of the involved institutions (stakeholders) in providing evidence and data for the observed phenomenon, but also in conducting significant research on this topic.
– LT5: Able to analyse models and criticize modelling techniques for development

Relevance for Sustainability

– Contribute in understanding the concept of sustainability
– Contribute in assessing the factors which impact development sustainability
– Contribute in measuring the relationship between different factors that create an impact on development

Related Teaching Resources

Basic knowledge of data analysis; or descriptive and inferential statistics; or basic econometric.

Preparation Efforts

Low

Preparation Efforts Description

– Two lectures on data collection, models and techniques in assessing development. Three preliminary study visits to institutions: central bank, statistics agency, World Bank Office in Prishtina and KOSID.

Access

Free

Assessment

Assessment of the project with points in each section. Total 100.

Credit/Certification Description

Unspecified

Sources and Links

http://data.worldbank.org/data-catalog/world-development-indicators

http://www.oecd-ilibrary.org/industry-and-services/data/stan-oecd-structural-analysis-statistics_stan-data-en

http://sedac.ciesin.columbia.edu/data/collection/esi/

http://issuu.com/yaleepi/docs/2014_epi_report

http://www.ivm.vu.nl/en/Images/AT5_tcm53-161576.pdf

http://www.feemsi.org/

http://bqk-kos.org/index.php?id=47

https://ask.rks-gov.net/

http://www.imf.org/external/data.htm

http://www.kosid.org/

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