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Statistics and its role in socio – economic developments

Phd Candidate. BICOKU Jonida
Lecturer in Statistics and Econometrics
Economics Department, Faculty of Economics, University of Elbasan"Aleksander Xhuvani",Albania
Former Officers House Elbasan, Albania
E-mail: jonidabicoku@yahoo.com

MSC. HAJDARI Suela
Lecturer in Macroeconomics
Economics Department, Faculty of Economics
University of Elbasan"Aleksander Xhuvani",Albania
Former Officers House Elbasan, Albania
E-mail: suela_ballkoci@yahoo.com

Abstract

"An essential component of any development planning is data.Without data, a country's efforts to plan for future growth and welfare of its people cannot be grounded in reality and therefore may be severaly flawed".

Hon. Prof. Peter Anyang' Nyong'o, Minister for Planning and National Development, Kenya

This paper is about the important role that statistics plays in poverty reduction that is a great social problem and economic development.The role and the power of statistics is recognized in the design and implementation stages of country policy frameworks, such as Poverty Reduction Strategies.The role of statistics consists also in monitoring progress towards the internationally agreed Millenium Developmet Goals (MDG).What are the MDG targets?

To reduce the number of underweight children, and the percentage of children who do not go to school

To halve the proportion of people living in poverty and suffering from hunger

To push back child and maternal mortality etc.

The role of statistics consists in the improving of transparency and accountability of policy making, and it's important to say that good statistics are essential to manage the effective delivery of basic services. Good statistics help donors by informing aid allocation decisions and by monitoring the use of aid and development outcomes. So, statistics are important to development progress, not just to monitor progress but to help drive the outcomes that the statistics are measuring.But recognising the critical role of statistics is one thing:doing something about it is another.Much more remains to be done to ensure the better use of better statistics as part of the enabling environment for development.In order to develop stastics most effectively and efficiently are necessary financial resources, but in most developing countries these resources are limited. This objective should be achieved by implementing strategic statistical plans, National Strategies for the Development of Statistics.New instruments have also been created to increase financingfor countries to improve their statistical capacity such as the World Bank's Trust Fund for Statistical Capacity Building.

Key words: Statistics, Data, Development, Social Statistics, Integration, Food Problems.

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Country Strategies and Frameworks for Social Statistics

Most low-income countries are developing national policy frameworks — such as Poverty Reduction Strategies and macroeconomic and sector management frameworks— as part of their policy processes to deliver development progress and reduce poverty.These strategies and frameworks highlight the need for statistics to provide a strongfoundation for the diagnosis of poverty and the development situation as well as tomonitor the effectiveness of policy implementation. So, statistics are needed to helpdrive the outcomes that the policies are aiming at, not just to measure progresstowards those outcomes. National Strategies for the Development of Statistics(NSDS) provide a framework for building and sustaining capacity to producenational statistics. If we refer to e report based on most recent estimates per country, there are millions of people living on less than 1 $ a day, for example in South Asia there are 472 millions of people living in this way, in Europe and Central Asia there are 9 millions people living on less than 1 $ a day etc.

Evaluation of Institutional Corporation between GSO[1] and SCB[2]

The GSO of Vietnam and SCB have been"twinned" since 1995 with the objective to develop the "timely supply of economic statistical information of appropriate quality and in cost efficient forms". Under this cooperation arrangement, SCB has provided both longterm advisors and short-term technical assistance to GSO. The three project phase shave funded training in statistical subject areas,English-language training, study tours and participation in international meetings. An IT component, including extensive provision of IT equipment, has enabled the project to establish an overall IT strategy for GSO, which has guided subsequent investment in IT.A recent evaluation found that the project has been very successful in supporting Vietnam's transformation to a market-based economy, which in turn is a major cause of the economic growth that is responsible for most poverty reduction. Because public statistics are part of the "infrastructure" of a modern democratic society, the project has also contributed to promoting openness and democracy. Key economic statistics of improved quality are available rapidly from GSO. Statistical capacity has been built and the Vietnam Government has increased its willingness to provide resources to GSO.

Based on interviews with stakeholders, the evaluation concluded that the improved statistics from GSO reach policy makers and planners, and that theyin turn base policies, plans and programmes on the statistics — a clear case of how building sustainable statistical capacity can underpin evidence based decision-making.

Nature of Socio – Economic Statistics

Economic statistics may be defined as an historical record of economic activity which is capable of guilding the understanding of an economic system and at the same time capable of guilding the formulation of policy within the system. Quantitative information on manpower, production, distribution, transport, foreign trade, prices, employment, investments, national income and expenditures are examples of economic statistics.

Social statistics refers to data generated on the condition and quality of life of the people. Statistical information on household, education, health, public safety and population are examples of social statistics.

Uses of Economic and Social Statistics

- Planning for national development
- Construction of systems of national accounts
- Construction of Economic Models
- Policy formulation and decision making

What are the problems of collecting Economic and Social Statistics in Albania?

The first one is that it's a conceptual problem, there are ploblems in the statistical system such as inadequate funding of the statistical agencies, administrative bureaucracy, inadequate coordination, cooperation and collaboration among major producers of statistics in the country. Another problem is the society, the problem in society, lack of statistical awareness, cultural /religious problems, language problem, poor social facilities.

Millennium Development goals, targets and indicators[3]

Heads of state agreed upon the MDGs and global targets for international development in September 2000 during the UN Millennium Summit, with the aim to dramatically reduce world poverty by 2015. The MDGs have proved to be a powerful tool for building the political will needed, and the Goals provide a focus for both government and civil society. But to meet the Goals, comprehensive information is needed to monitor progress towards national and international targets, to inform policies and development strategies, and to spur the international community into action. A set of indicators has been developed to measure progress towards the MDGs and targets and, in turn, the indicators rely on information from robust and reliable national statistical systems. MDG Country Reports document the progress in individual countries and assess each country's statistical capacity as a fundamental part of weighing whether the country is likely to meet its own MDG targets.

Aid Effectiveness[4]

[1] *Vietnam's General Statistics Office*
[2] *Statistics Sweden*
[3] *The Ethiopian Herald, website information*

Good statistics help donors by informing aid allocation decisions and by monitoring the use of aid and development outcomes. The Paris Declaration on Aid Effectiveness (March 2005) recognises the need for better statistics for more effective aid. Ministers of developed and developing countries responsible for promoting development and Heads of multilateral and bilateral development institutions stressed the need to:

1. Put control in the hands of partner countries,

2. Align donor support with partner countries' development strategies, institutions and procedures

3. Harmonise donor actions to be collectively more effective,

4. While monitoring implementation and outcomes within a framework of mutual

accountability between development partners.

Statisticians at the United Kingdom Department for International Development, in order to improve aid effectiveness will ensure the effective use of statistics by improving DFID data collection systems and quality control, improving communication of evidence and results etc.
Governments and donors are more focussed than ever before on the desired outcomes and impact of their development efforts, and on using information to improve policy and decision-making. Citizens, meanwhile, need statistics to hold their governments to account. So, statistics are important to development progress, not just to monitor progress but to help drive the outcomes that the statistics are measuring. But recognizing the critical role of statistics is one thing; doing something about it is another. Much more remains to be done to ensure the better use of better statistics as part of the enabling environment for development.
Countries need both financial and technical assistance, in addition to their own resources. This will be a long-term process, which will need to be both scaled-up and sustained. And countries need this support to be well coordinated and effective. A 2005 review of donor support for statistical capacity building in Africa by the Partnership in Statistics for Development in the 21st Century (PARIS21) showed that this is not always the case, with some donors remarking that there is insufficient donor collaboration and that programmes are not always designed with capacity building as an objective.
Experience has shown that statistics can best be improved through a comprehensive strategic approach, aimed both at producing better data now as well as building sustainable statistical capacity for the future — rather than through the often piecemeal efforts of the past which tended to produce statistics but not the capacity to replicate them in the future.
In most developing countries, financial resources are very limited, and careful decisions need to be made about how best to develop statistics most effectively and efficiently. This can be facilitated through the design and implementation of strategic statistical plans, National Strategies for the Development of Statistics (NSDSs), aligned with the wider national policy frameworks and strategies. It also makes sense to build on what exists and what is already being developed through programmes such as the IMF's General Data Dissemination System (GDDS), in which a large number of countries already participate, and the work of the Health Metrics Network (HMN), to expand the availability and use of timely and accurate country-based health information systems.

Why cant we better measure and monitore results?

Measuring and monitoring development outcomes require timely, reliable, comparable, relevant, and accessible survey datasets.But:

1. Existing data are not always fully exploited because of low capacity and interest from data producers, or another reason is that data are not always accessible to secondary users.This can be eliminated by defining and implementing transparent and more open dissemination policies.
2. Methods and concepts are not harmonized, Surveys are often ad-hoc; little attention is paid to harmonise concepts and methods across surveys.
3. Timeliness and frequency are not optimal, Survey programmes are often donor driven.

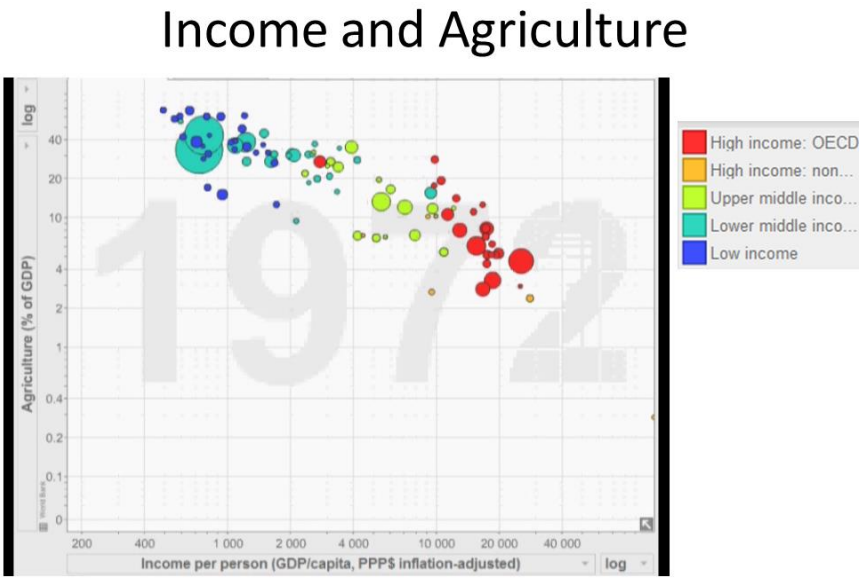
Consistent, coherent and reliable international datasets are an important requirement for managing for results.

Econometric Model, Food Problems (Dependent variable – GDP per Capita)
In order to «measure» policy impacts, one can use different approaches or quantitative models for socio-economic analysis, i.e. models in which the variables of interest are expressed in a common unit – the numeraire – that is usually used as a monetary unit .

To verify the role that statistics has in the socio economic development, between quantitave models, i have taken one problem such as Food Problems.Now we want to look in details that what happened in time to the Incomes per person and the Agricultural Production in each county. The following picture gives an overview of the situation in 1972. This is after the green revolution. The Green Revolution refers to a series of research, development, and technology transfer initiatives, occurring between the 1940s and the late 1970s, that increased agriculture production around the world, beginning most markedly in the late 1960s.The initiatives involved the development of high-yielding varieties of cereal grains, expansion of irrigation infrastructure, modernization of management techniques, distribution of hybridized seeds, synthetic fertilizers, and pesticides to farmers.In the following picture each dot is a country. The size of the dot depends on the size of the

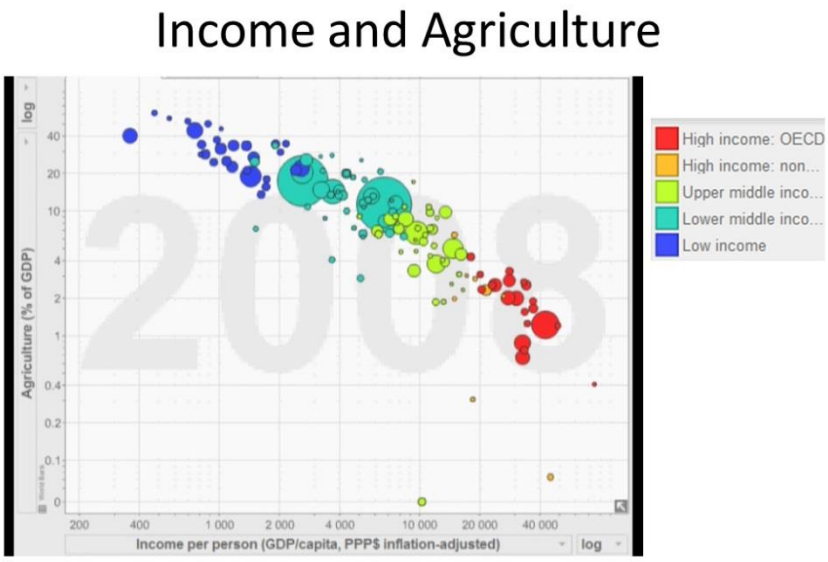
[4] *Counting down poverty, OECD*

country's population. The color of the dot shows whether a country has high, middle or low incomes as the legend shows.



Source: Gapminder program

On the horizontal axis are graphed the incomes per person adjusted by the inflation of each country, and in the vertical axis is graphed the agriculture production as percentage of GDP of each county.The graph shows that even after the green revolution there was a gap between the high income and low income countries. And on the other side there was no gap between the low middle and low income countries. Then, we want to compare the previous graph with a recent one.



Source: Gapminder program

The graph found above is a recent picture of the graph 1 we analyzed. As we see from graph 2 the gap between the different income countries had got wider and we also see a differentiation of the lower middle and lower income countries. On the other side as the developed countries with high income got richer (from graph 1 to graph 2) their percentage of agricultural production as part of GDP felt rapidly and left the agricultural production to the less developed countries. Hence, the job of satisfying the hunger of all the world is nowadays left on the shoulders of the middle income and low income countries. This also shows that the agricultural production is pursued as not so profitable from the rich countries. As their incomes per person grow higher, they

tend to use the recourses previously used for agricultural production, now for an increase in the industrial or service production.

However, there is no underproduction of the food globally talking, but the distribution of the food supplies is not efficient. Even though the poor countries have a bigger percentage of agriculture production in ratio of their GDP, still their production does not generally satisfy their needs. In the low income countries the land is divided in small pieces and it serves to produce foods just for an extended family.

1.1. The Econometric Model

The purpose of the following econometric model is to evaluate the relationship of the dependent variable: GDP/Capital on the independent variables such as:

- Doing Bussines index 2011 Ranking

Economies are ranked on their ease of doing business, from 1 – 183. A high ranking on the ease of doing business index means the regulatory environment is more conducive to the starting and operation of a local firm. This index averages the country's percentile rankings on 9 topics, made up of a variety of indicators, giving equal weight to each topic.

- Imports Values in Millions of USD
- Percentage of the Total Agricultural Production Exports
- Percentage of the Total Agricultural Production Imports
- Simple Average of Import Duties for Agri Prod
- Agricultural Land in Hectares
- Dummy variable: Assesion in AoA in 1995

The final Econometric Model

GDP per Capita = 25346 -109.21*Doing Business 2011 ranking + 0.18*Merchandize Exports –
(7.2) (-4.83)
(4.11)
ranking + 0.18*Merchandize Exports – 0.039*Merchandize Imports – 130.25*Percentage of
(-3.1) (-3.05)
the Total Agricultural Production Exports – 345.25*Percentage of the Total Agricultural
(-2.11) (2.9)
Production Imports + 133.96* Average of Import Duties for Agri Prod + 0.008*Surface in
(1.703)
Hectares + 1669.42* Assesion in AoA in 1995
(0.85)

We have evaluated the changes in GDP per capita for 174 countries of the world.

From the model we can discuss about the coefficients found in front of each variable. For instance, the growth in GDP per capita of a country decreases the ranking of that country in the doing Business report. This means that a better attractiveness of a country gives to it more investments and so its GDP per capita will grow.

Regarding the second variable it's obvious that a growth in Merchandize Exports will also increase that country GDP per capita, and the contrary must be said regarding the Growth of the Merchandised imports. It will of course reduce the GDP per capita in the long run because of problems with the commercial balance sheets of the country.

On the other side Percentage of the Total Agricultural Production Exports is reducing if a country has a higher standard of living. This is because, as we said earlier, as a country gets higher GDP per capita they try to specialize and allocate their internal recourses to more productive and less riskier activities, by investing more on industry and services and leaving behind the investments in agriculture.

By this logic this countries, as their GDP per capita increases, will produce the amount of agricultural products needed for their citizens and will tend not to import the agricultural production form other countries.

On the contrary of the theories, the Average of Import Duties for Agricultural Production tend to rise as the GDP per capita of one country get higher. This means that each developed country tries to put tariffs and duties so that the foreign competitors won't be a problem to the inner companies.

Of course, having more agricultural land gives more possibilities to utilize it and it will increase the GDP per capita of that country.

All the above variables are significant. The only insignificant variable is the Assesion in AoA in 1995. This is a dummy variable. It shows whether the assesion in the Agreement of Agriculture is important in increasing the GDP of a country. Because this variable is insignificant means that it's not important and it doesn't give big impact in the development of a county. By this result we might put in discussion whether AoA is doing efficiently its job. This also because as seen from the Average of Import Duties for Agricultural Production variable we see that as GDP per capita gets higher the countries tend to increase their tariffs and duties, in conflict to the agreements on AoA. So, using the statistic methods can help us to explain the problem, to get the variables that affect the real problem, to make a forecast for the future.

Forecast: MAPE = 4.5%

These are the tables extracted from the SPSS program.

Coefficients[a]

1	(Constant)	26424,404	3244,842		8,144	,000
	Doing_Business_2011_Ranking	-107,009	22,425	-,340	-4,772	,000
	Merchandise_exports_ million_US$	,194	,045	,685	4,330	,000
	Merchandise_imports_ _million_US$	-,041	,013	-,528	-3,233	,002
	Share_in_world_total_exports_Agricultural_products	-127,239	42,436	-,183	-2,998	,003
	Share_in_world_total_imports_Agricultural_products	-370,339	160,116	-,148	-2,313	,022
	Simple_average_of_import_duties_Agricultural_goods_AOA	138,461	45,139	,196	3,067	,003
	Surface_in_Hectares	,009	,005	,108	1,723	,087
2	(Constant)	25346,802	3487,016		7,269	,000
	Doing_Business_2011_Ranking	-109,217	22,598	-,347	-4,833	,000
	Merchandise_exportsmillion_US$	,188	,046	,661	4,110	,000
	Merchandise_imports million_US$	-,039	,013	-,511	-3,102	,002
	Share_in_world_total_exports_Agricultural_products	-130,253	42,628	-,188	-3,056	,003
	Share_in_world_total_imports_Agricultural_products	-345,356	162,958	-,138	-2,119	,036
	Simple_average_of_import_duties_Agricultural_goods_AOA	133,963	45,496	,190	2,945	,004
	Surface_in_Hectares	,008	,005	,107	1,703	,091
	Dummy	1669,424	1964,637	,050	,850	,397

Model 1 shows the significant variables, and in model 2 we have also introduced the Average of Import Duties for Agricultural Production dummy variable.
R, R square and Adjusted R square of the 2 introduced models are the following.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,766[g]	,587	,565	10249,94113
2	,768[h]	,589	,564	10260,66833

We expected to have a low Adjusted R square because we included into the model just the imports and exports, but obviously the GDP per capita dependes from lots of other variables.

Conclusions

- Based on the literature review and the results of the econometric model , the evaluation concluded that the improved statistics from GSO reach policy makers and planners, and that the in turn base policies, plans and programmes on the statistics — a clear case of how building sustainable statistical capacity can underpin evidence based decision-making.
- Much more remains to be done to ensure the better use of better statistics as part of the enabling environment for development. Countries need both financial and technical assistance, in addition to their own resources. This will be a long-term process, which will need to be both scaled-up and sustained.
- And countries need this support to be well coordinated and effective. Measuring and monitoring development outcomes require timely, reliable, comparable, relevant, and accessible survey datasets. But existing data are not fully exploited, methods and concepts are not harmonized.
- An important recommendation is to increase the accountability of the International Statistical System.

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