

Internet-banking in global rural area and agribusiness based on bioeconomy for sustainable development of agrifood green power in forecasting the periods 2020-2050-2100

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Abstract: This paper discusses recent trend and evolution of internet monetary institution (monetary institution through Internet) for small village monetary institutions in rural areas in order to develop this area for smarter agribusiness based on bioeconomy. Many countries will continue depending on international trade to ensure their food security. It is estimated that by 2050 developing countries' net imports of cereals will more than double from 135 million metric tonnes in 2008-2009 to 300 million in 2050. That is why there is a need to move towards a global trading system that is fair and competitive and that contributes to a dependable market for food. Reform of farm support policies in OECD countries is a welcome step which has led to a decline in the aggregate trade distortion coefficient from 0.96 in 1986 to 0.74 in 2007. Climate change and increased biofuel production represent major risks for long-term food security. Although countries in the Southern hemisphere are not the main originators of climate change, they may suffer the greatest share of damage in the form of declining yields and greater frequency of extreme weather events. Studies estimate that the aggregate negative impact of climate change on African agricultural output up to 2080-2100 could be between 15 and 30 percent. The applications of internet monetary institution of several local monetary institutions in rural areas are investigated and examined. The research objective is to investigate the trends and level of prevalence of on-line monetary institution (i.e., internet monetary institution) focusing on some emerging problems and challenges. Managerial implications are discussed with suggestions for future research.

Keywords: eco-economy based internet banking, bioeconomy based internet banking, new paradigm for 2050 and 2100 - ecobioeconomics, bioeconomy, ecoeconomy, food security, social economy

1 Introduction

The Internet has changed the functions of many economies, and has been becoming a powerful channel for marketing and communication – this challenge is necessary in rural area too. The monetary institution trade has followed this trend in recent years, and sometimes called *internet monetary institution* referring to all monetary institution transactions now completing through Internet applications. Some key problems addressed in the recent literature about the internet monetary institution include: client acceptance and satisfaction, services rendered, value added for clients and monetary institutions, privacy concerns, profitability, functional risks, and competition from non-monetary institutions [1].

There have been several major challenges and problems faced to the internet monetary institution growth and the internet economy in general. One major obstacle addressed most is the authenticity concern. Another problem challenged internet economy (including internet monetary institution) is the quality of delivery service. Limited payment options available to online clients are also being

complained. It has been anticipated that to be successful in time, the functions of an internet agribusiness must compete distinctly from those traditional business companions [7].

The population from rural area has to be sustained because this population is the future. The resources will finish in the future and people from rural area will bring new fresh air in the development of the technologies.

2 Agrifood Green Power in 2050 and Forecasting for 2100 with Sustainable Solutions Based on Ecobioeconomics

In the following, the key elements of current expert thinking regarding the outlook for food security towards 2050 will be summarized. The key message from this assessment is that it will be possible to achieve food security for a world population of 9.1 billion people projected for that time, provided a number of well specified conditions are met through appropriate policies [8]. The main socio-economic factors that drive increasing food demand are population growth, increasing urbanization and rising incomes. As regards the first two, population

growth and urbanization, there is little uncertainty about the magnitude, nature and regional pattern of their future development. According to the latest revision, the world population is projected to grow by 34% from 6.8 billion today to 9.1 billion in 2050. Compared to the preceding 50 years, population growth rates will slow down considerably. The AT2010 study is based on the UN (1990) population projections for individual countries. In this study the updated population projection from FAO is used, which is slightly adapted from the UN (1994) population projection for 1990-2050 [9]. For the period 2050-2100 the growth rates used by specialists [7], which were originally produced for the IPCC IS92 scenarios were taken. Nearly all of this increase in population will take place in the part of the world comprising today's developing countries. The greatest relative increase, 120%, is expected in today's least developed countries (Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, 2007).

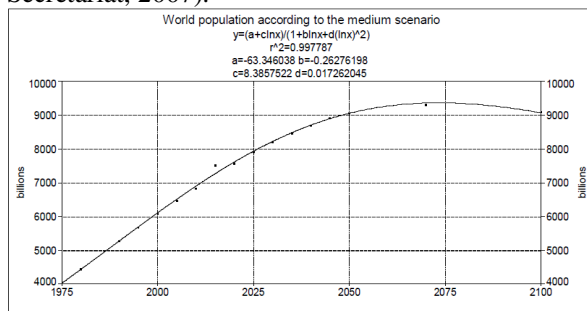


Fig. 1. Population development between 1975 and 2100 (correlation calculate by our working group coordinated by Bogdan A., using data base on UN, 2007. World Population Prospects)

Increased investment, effective regulation and incentives are needed with regard to all three natural resources required for sustainable and stable production growth: land, water, biodiversity. The aim should be to stop over-exploitation, degradation and pollution, promote efficiency gains and expand overall capacities as appropriate. Adequate regulation and incentives are also needed to provide the rural population engaging in ecosystem services with win-win solutions to improve the sustainability of ecosystems, mitigate climate change and improve rural incomes. Based on the projected growth of population and incomes and expected changes in consumption patterns, the FAO estimates future consumption levels for various commodities country by country.

According to FAO's baseline projections, it should be possible to meet the future food and feed demand of the projected world population in 2050 within

realistic rates for land and water use expansion and yield development. However, achieving this will not at all be automatic and several significant challenges will have to be met. The global average daily calorie availability would rise to 3050 kcal per person, a 10 percent increase over its level in 2003/05. To achieve this, global cereal production would need to increase by 40% overall, or by some 900 million tons between the 2006/08 average and 2050. The advent of biofuels has the potential of changing all that and causing world demand to be higher, depending on the energy prices and government policies. Without biofuels, much of the increase in cereals demand will be for animal feed to support the growing consumption of livestock products. Meat consumption per capita for example would rise from 41 kg at present to 52 kg in 2050 (from 30 to 44 kg in the developing countries).

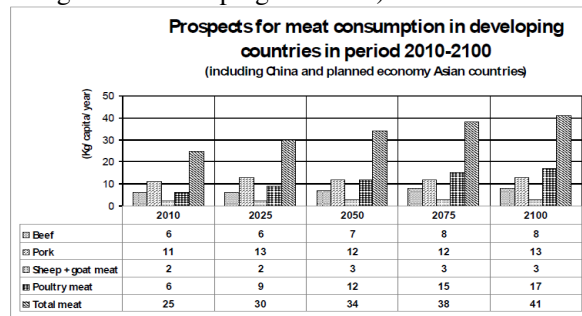


Fig. 2. Prospects for meat consumption (kg/capita/year) in developing countries in period 2010–2100 (correlation calculate by our working group coordinated by Bogdan A., using data base on The State of Food Insecurity in the World 2004)

The growth in per capita food consumption was accompanied by significant change in the commodity composition, at least in the countries that experienced such growth. Much of the structural change in the diets of the developing countries concerned the rapid increases of livestock products (meat, milk, eggs), vegetable oils and, to a smaller extent, sugar, as sources of food calories. These three food groups together now provide 29% of total food consumption of the developing countries (in terms of calories), up from 20% three decades ago. Their share is projected to rise further to 35% in 2030 and to 37% in 2050 (in the industrial countries the share has been around 48% for several decades now). However, structural change was not universal and wide inter-country diversity remains in the share of different commodity groups in total food consumption.

Cereals continue to be by far the most important source of total food consumption in the developing countries (their direct food consumption provides 54% of total calories) and the world as a whole

(50%). There is, however, very wide inter-country diversity: direct food consumption of cereals provides only 15-30% of total calories in several countries ranging from those with diets based predominantly on roots and tubers to several high income countries with predominantly livestock-based diets (these latter countries consume, of course, large quantities of cereals indirectly in the form of animal feed for the production of the livestock products they consume as food). Concerning the future, the downward pressure from developments in China and India on the averages of the world and the developing countries will be attenuated and on balance the declines in these averages observed in the last few years may be halted at least in the first sub-period of the projections to 2030 before resuming a slow pace of decline in the two subsequent decades. This likely development will be the net effect of the contrasting trends of, on the one hand, diet diversification away from the direct consumption of cereals in those countries attaining medium-high levels of food consumption, and on the other hand, increases in per capita consumption in those countries remaining at low levels of food consumption and/or diversifying towards cereals and away from other staples, e.g. roots and tubers.

The share of cereals in total calories will continue to decline, but very slowly, falling for the developing countries from 54% at present to 49% in 2030 and to 46% in 2050. Naturally, the per capita consumption of cereals for all uses (including food, feed and other nonfood uses, e.g. for seed and the production of ethanol or starch) should keep growing again after the reversal of the sharp declines of the 1990s in the feed sector of the transition economies [2].

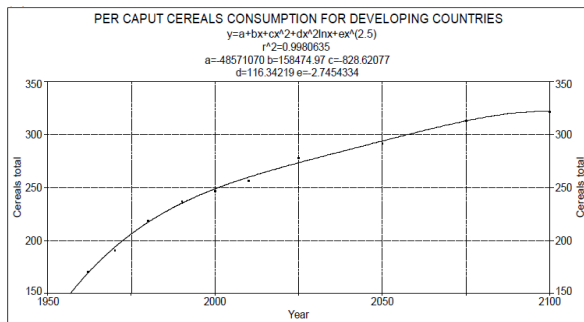


Fig. 3. Regression curve to describe the dynamic of cereals food consumption for developing countries (correlation calculate by our working group coordinated by Bogdan A., using data base on *The State of Food Insecurity in the World 2004*)

The implications of the changes indicated above for undernourishment in the future are unfolded SOFI08 indicated that the numbers undernourished in the

developing countries increased from 90/92-2003/05, although the percent of the population affected declined. We saw above that the same applies to changes in the period 99/01-2003/05. However, we noted that revisions in the data of kcal/person/day alone would have produced a small decline, not an increase. It is the application of the whole package of data and parameter revisions that generates a small increase. Should we take this as indicating that the problem is getting worse rather than improving towards the WFS target of halving absolute numbers by 2015 (from those in 90/92)? We can only note that the increase in the estimate of the absolute numbers is small and may well not be significant, given the data noise.

The impact is reinforced for the absolute numbers because now the projected population of the developing countries is higher. The revised projections indicate a slow decline in undernourishment.

However, in the IR the rate of decline was such that the achievement of the WFS could be within reach shortly after 2030. In the revised estimates, the achievement of the target is shifting further into the future –to just before 2050. The present paper connects Nicolas Georgescu-Roegen’s world-wide-known paradigm of improving the agricultural efficiency to Lester Brown’s more recent Eco-Economy – Building an Economy for the Earth paradigm.

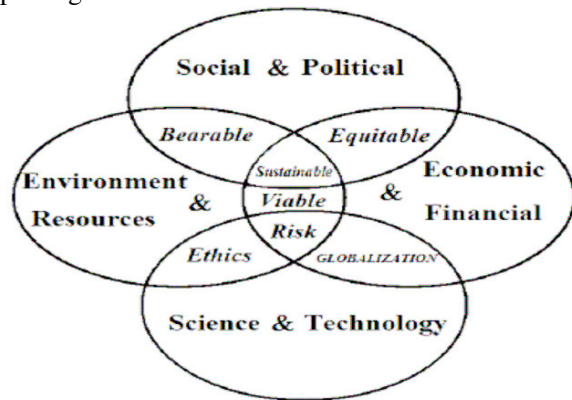


Fig. 4. Modification of Lester Brown’s diagram for eco-economics paradigm, considering globalization and economic-financial crisis, with Sustainable Solutions Based on Ecobioeconomics new Paradigm (modification by our working group coordinated by Bogdan A.)

The relations between humans and the animals they use as food have changed in time. At first, man was a hunter. Now hunting is a sport. Afterwards, he became a preserver, keeping only the wounded or young animals for food. Now keeping is a matter for the Zoogardens. Later on, humans started to reproduce animals and became breeders. Now they are breeders of many animal species. Today some

breeders, especially as far as poultry and pigs are concerned, have become producers. Now people speak about poultry and pig industries. This development has been determined by the increase in the human population in one part of the globe or another. Over the last century a human demographic explosion has taken place. So, the requirements for food, for commodities and for other goods have increased tremendously. Industries have grown very much and along the way so has the needs for transports and energy. The frames and trends of economy have to be changed. Agrifood must solve the problems of food security and of the safety food, in point of the quantity and the balance of nutrients needed by the humans. There is less fossil fuel and they have become very expensive.

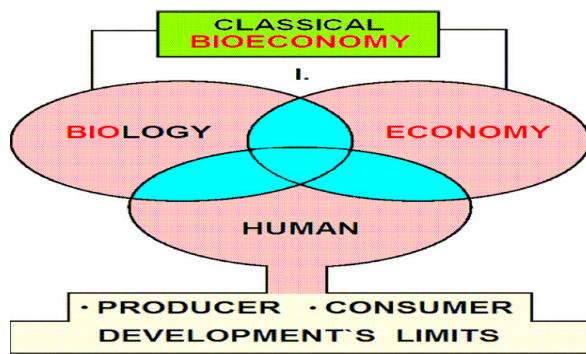


Fig. 5. Remarks for classical bioeconomy based on prior terminology using the term "bioeconomy" from Grigore Antipa (1906–1916) and Nicolas Georgescu Roegen (1960-1975), with human significations of economy (orig.)

For sustaining the future of the humanity rural area will have an important role, but especially the technology and communication in this area. The people from rural area needs monetary institutions and services.

Monetary institution has never been more important to our society than it is today. The advance of communication and data processor engineering and the availability of the Internet have made it possible that one can do most monetary institution transactions from a remote location even without stepping into a physical monetary structure - i.e., the emerging of internet monetary institution [7].

3 The internet monetary institution and the Romanian rural area trend

Internet monetary institution has been viewed as a metamorphism progress in the monetary institution trade. For instance, 20 years ago, 70% of all client monetary transactions went through a monetary institution agency with brick and mortar structures. Today, less than 30% of the same client monetary transactions run through a part agency or the lobby

of a main monetary institution agency. [9]

Facing extremely intensive competition from non-monetary institution sector, the monetary institution trade has adopted a more aggressive process to fight competitors for the monetary services market share.

Due to distinct motivational factors, however, monetary institutions have placed distinct sums in their internet monetary institution efforts. While larger and national monetary institutions are leading in the internet monetary institution forefront, the same cannot be said about smaller and rural area monetary institutions - only about 7% of smaller rural area monetary institutions were reported to explore the internet monetary institution functions. This has been attributed to the fact that those smaller rural area monetary institutions were in general *lack* in both monetary and technological resources in their internet monetary institution efforts. While more variety of internet monetary institution services has been projected, over half of the growth in internet monetary institution services was anticipated from smaller rural area monetary institutions. Currently, the internet monetary institution functions focus mainly on bioeconomy lending and credit card economies, other than rely on deposits for funding. For smaller rural area monetary institutions, this is consistent with recent reports that smaller monetary institutions are concerned about traditional sources of funding and view the addition of internet monetary institution as a way to offer products that reduce their dependence on core deposits. Internet monetary institution options also generate a higher proportion of their income from nontraditional activities - over 50% more of their profits from non-interest income comparing to monetary institutions without internet monetary institution functions [9]. As a result, these monetary institutions have adopted a bioeconomy strategy of using the internet monetary institution to target bioeconomy clients and more wealthy clients for not only in loans but other fee income services.

In comparison, smaller monetary institutions have higher start up costs and tend to have a high initial technological cost in developing internet monetary institution services. In fact, most small monetary institutions were motivated to develop internet monetary institution services for potential future cost savings and gaining a competitive edge in the competition. That is, among 85% monetary institutions nationwide offering internet monetary institution, the biggest growth has been coming from small and monetary institution from rural area rural area monetary institutions. Another recent trend revealed is that about 93% of client deposits were served by the monetary institutions with internet

monetary institution services [9]. The internet monetary institution sector has been growing to reach a competitive level. Some new internet monetary institution services have gained a growing popularity such as internet payments and statement aggregation. It is anticipated that the service of *statement aggregation* will become a critical internet monetary institution feature in the future. This service is used to drive new economy - agribusiness, clean, increase profitable cross selling opportunities, and initiate improved service quality and quickly becoming popular among monetary institution clients. Internet monetary institution has become a serious competitor to traditional monetary institutions, especially in large urban areas. With the interests of quick and easy application process, less and less technical glitches, more funding options for monetary institution clients, and low minimum opening deposit requirement, traditional monetary institutions nowadays have to compete more relying on their conventional face-to-face services, first-name calling friendly environment, and trust and secure feeling of transacting bioeconomy with a person in a monetary institution.

4 Follow-up survey and result analysis

The current available e-banking services provided by the surveyed banks are listed in Table 1. It can be seen that those basic online services are now available by all survey participants, such as: inline account inquiry, online account application, online financing options, Internet checking and savings account, online purchasing of CDs, and even online payment option. Some newer e(i)-banking options, however, are only available by two relative larger banks (50%), including online services to small business, online trusts fund account management, online investment brokerage service, and Internet insurance option. It indicates a clear direction for the future internet banking development for that small and rural area financial institution [9].

Table 1. E(i)-services in rural area

Which of the following E-Services does your bank provide?	Bank 1	Bank 2	Bank 3	Bank 4	Total Percentage
Online Inquiry	X	X	X	X	100%
Online Payment	X	X	X	X	100%
Mortgage Application	X	X	X	X	75%
Information/ About Us	X	X	X	X	100%
Small Business		X	X		50%
Locations	X	X	X	X	100%
Employment Information	X				50%
Trusts		X	X		50%
Financing	X	X	X	X	100%
Estate Planning		X	X	X	75%
Brokerage		X	X		50%
Loans	X	X	X	X	100%
Checking/Savings	X	X	X	X	100%
Investment Management	X	X	X		75%
ATM/ Visa Check Card	X	X	X		75%
CDs and IRAs	X	X	X	X	100%
Insurance	X		X		50%
Commercial and Corporate		X	X		50%

Table 2. Future direction of e(i)-banking

What major challenges and difficulties has your bank faced when dealing with E-Banking?	Lack of in-house IT professionals	50%
	Lack of interest from customers	0%
	Extra workload from processing online banking services	25%
	Need for employee training in IT technology	25%
	The innovative nature of E-Banking	25%
Is E-Banking a Priority for your bank in the future?	Yes	100%
	No	0%
How frequently do you update your services and website?	Daily	25%
	Bi-Weekly	0%
	Weekly	25%
	Monthly	50%
In which direction does your bank believe that the Banking Industry will shift?	Traditional Banking	50%
	E-Banking (greater than 50%)	50%

To capture the newest trend and evolution of internet monetary institution by small and monetary institution from rural area rural area monetary institutions, a questionnaire survey was conducted from January to March of 2009, after the descriptive investigation of the internet monetary institution functions of the three small and monetary institution from rural area monetary institutions discussed above. Four monetary institutions from rural area were selected for this survey research, including the three described above. The survey focused on three primary areas and perspectives of internet monetary institution functions for small and monetary institution from rural area: current status of their internet monetary institution functions, current internet monetary institution services provided, and future directions of their internet monetary institution functions [6].

5 Conclusions and future research

Some key problems addressed in the recent literature about the internet monetary institution include: client acceptance and satisfaction, services rendered, value added for the monetary institutions and clients, privacy concerns, profitability, functional risks, and competition from non-monetary institution institutions. Smaller rural area monetary institutions, among others, are more interested in the internet monetary institution services to gain competitive edges over their larger companions. This paper describes a case study of three such small monetary institutions from rural area monetary institutions and their efforts in developing and operating their internet monetary institution services. Both their successes and struggles discussed in this paper could provide some meaningful insights and serve as comparative examples (i.e., benchmarks) in evaluating the performance of internet monetary institution functions, especially for those small and monetary institution from rural area rural area monetary institutions. For future research, more similar small and monetary institution from rural

area rural area monetary institutions will be selected to further collect the information about their newest trends and evolution in their internet monetary institution functions - to enhance managerial implications to be learned from this paper.

However, the livestock sector plays a crucial role in the provision of global public goods and services. There are opportunities to alleviate many of the risks associated with the expanding sector and to develop its full potential in ensuring benefits for the poor with a gender equality perspective, and to encourage a more responsible use of increasingly scarce inputs and natural resources. This will require dynamic generation and adoption of new technologies, products and services as well as networks and institutional development within an enabling policy and regulatory environment. The vigorous growth of the livestock sector, its importance for income generation, food security, human nutrition and health, and its impact on various public goods and services require careful attention by the international community.

Increased sustainable livestock production is dependent on up-to-date, relevant, comprehensive and reliable, gender-sensitive information to underpin the rural development process and to ensure that it is supported by effective policies. To support such processes, FAO has set up a web-based "Gateway to governance in the livestock sector"¹⁰. By mandate, FAO is the only international organization that has the breadth of capacity and mandate to address the livestock sector guidance in all its complexity. FAO has thus a clear comparative advantage in assisting member countries on livestock sector policies which benefit the poor, the general public and the natural resources.

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