

To: 13th International Congress of the Basic Income Earth Network

Title of the contribution:

BASIC INCOME AND SIMULATION STUDIES IN EUROPE
An on-line tool based on an Italian case study

Paper prepared for the 13th International Congress of the Basic Income Earth Network

Romano Mazzon (Department of Sociology, University of Padova)
romano.mazzon@unipd.it

Alessio Surian (Department of Education, University of Padova)
alessio.surian@unipd.it

Gabriele Francescotto (Opencontent, Trento)
gabriele@opencontent.it

Address

Department of Sociology
University of Padova
Via Cesarotti 12
35100 Padova, Italy
Telephone/Fax number (including international access code)
390498715303

Selected topic:

Feasibility and financing issues at the local, national, regional, and global level (including political economy of financing, concrete experiments, and alternative revenue sources)

Abstract

The paper presents an on-line tool developed by social science researchers from the Veneto Region in the framework of a basic income study (Surian et al., 2009) comparing different European scenarios. The study reviewed existing experiences and simulation models from European governments including Euzkadi, Catalunya, France, Ireland. The attempt of the study is to present basic income tools not only as a measure to respond to economical crisis but as a way to address and go beyond socio-economical crisis. To this purpose the study analyses the measures implemented in the Rovigo Province and suggests a socio-economical on-line tool to allow for local and regional simulations taking into account previous BI models such as those presented by Raventos, Sanzo Gonzalez and Pinilla.

The technical tool includes an integration of the CMS eZ publish with a central relational database (PostgreSQL or MySQL), and it makes use of the following technologies: web GIS3, OpenLayers4, OpenStreetMap5.

1. Introduction – The International and European scenario

24 out of 27 Member States have minimum income schemes in place as 2010 was declared by the European Union "European Year Against Poverty and Social Exclusion" although the European Anti-Poverty Network (EAPN) considers that "there are serious flaws with their accessibility and their adequacy". According to EAPN "it time to state clearly that adequate Minimum Income schemes are a fundamental prerequisite for an EU based on social justice and equal opportunities for all".

In 2009 the Veneto Region (Italy) commissioned a study to Laboratorio Politiche Pubbliche (LPP, <http://lpp.opencontent.it/>) (Surian et al., 2009 - <http://lpp.opencontent.it/?q=node/145>) to acquire information about minimum income schemes with special attention to the European Union countries. The study provided an opportunity to compare different European scenarios and to review existing experiences and simulation models from European governments including specific references to case studies from Catalunya, Euzkadi, France, Ireland.

Since its first research and training assignments in 2006 LPP promotes copyleft and open source policies. In relation to the study commissioned by the Veneto Region LPP was therefore interested in exploring and in collaborating with/producing on-line tools to share and to test knowledge in the field of basic income measures. A useful tool concerning social transfers around the (developing) world is recent matrix that is listing and documenting them through an International Labour Organization (ILO)'s web site that explores their effects. The matrix makes it noticeable how some of these programmes adopt a Basic Income (BI) approach/rationale. It allows to check specific data concerning the impact of social transfers (i.e. the impact of family benefits on child labour in Latin America; the impact of social pensions on labour market participation etc.). The matrix is available at: <http://www.socialsecurityextension.org/gimi/gess/ShowCompendiumProgrammesByCountry.do>

Even small scale experiments can provide first hand insight upon the effects and the sustainability of BI measures. Recently (February 2010) Isobel Frye, director of studies at the Poverty and Inequality Institute, a nonprofit research institute based in Johannesburg, summarised a BI experiment in Namibia that was initially looked down with scepticism by mainstream politicians: "The Namibian BIG Coalition raised the money themselves, and got the post office, Nampost, to agree to pay out the monies to people every month. One thousand people have been receiving 100 Namibian dollars every month for two years now. The results have been incredible. From a desolate settlement of farm workers unfairly evicted after years of work by surrounding farmers, the village has grown into a community. Malnutrition rates as measured by the clinic have fallen from 42percent of children under 5 – to zero cases. Gardens bloom, children go to school and goats multiply. These villagers still are poor and live in zinc houses, but they are no longer destitute and they are no longer starving" (source: <http://www.sowetan.co.za/News/Article.aspx?id=1116620>).

Terwite (2009), in his doctoral dissertation *Should proponents of basic income advocate basic income social experiments in Germany?* argues that basic income social experiments (as specific type of pilot project) are a very useful tool for meeting a number of strategic challenges currently confronting scholars and organisations proposing BI.

In the first place, such experiments are a method for addressing knowledge gaps concerning the consequences of introducing BI measures.

Moreover, social experiments are useful because they help to overcome the discursive impasse which is partly a result of the current lack of knowledge. They can help to stimulate the debate and they show a potential for shifting the burden of proof back to the defenders of the status quo.

Lastly, Terwite finds ethical objections to BI social experiments to be insubstantial and ascertains the feasibility of BI social experiments in the German context.

In drafting its overview concerning BI in various European contexts, LPP had the opportunity to draw inspiration from seminal work such as those by Pinilla Palleja and Sanzo (2004) that present concrete proposals of income support measures inspired by the principles of BI and to analyse a micro-simulation programme that was applied by Raventos (2007b) to a database including a sample of 110,474 tax declarations from Catalonia. This was meant to assess different policy options for tax-benefit integration, including Basic Income. Raventos' study provides evidence that the BI proposal is viable in economic terms and that the impact of the distribution of income would be highly progressive. With due database changes and adjustments according to the fiscal reality of each place, the measure can be applied in many countries and it provided a source of inspiration for LPP work.

2. Beyond the response to the economical crisis – The local scenario

LPP study (Surian et al. 2009) attempts to present basic income tools not only as a measure to respond to economical crisis but as a way to address and go beyond socio-economical crisis. To this purpose the study analyses the measures implemented in the Rovigo Province and suggests a socio-economical on-line tool to allow for local and regional simulations taking into account previous BI models such as those presented by Raventos (2007a) and Sanzo Gonzalez (2005).

The Rovigo Municipality's Last Option Income (LOI, Reddito di Ultima Istanza) was identified and used by LPP in order to test accessible way to share data and analysis in this field. The name that was given by the Veneto Region (and consequently by the Rovigo Municipality) to this allowance is already explicit about what the allowance itself is not about. It is not conceived as a social measure that respond to a universal right. It is not an allowance that a public authority should grant to all citizens regardless of whether they have jobs or not.

The Rovigo Municipality's LOI was introduced as a trial and it was financially supported by a national budget line which was established in 1999 in order to provide resources to boost employment. The national budget does not refer to a universal right but it is configured in order to support the economic conditions of families at risk of marginalization and to initiate specific integration programmes involving the beneficiaries.

In this case the assistance takes two forms. It can be provided in the form of support or it can be viewed as an active labour market policy. According to official figures, the trial's phase's total cost was € 124,975.05 (Verbale di deliberazione della giunta comunale n. DLG/2009/33 , Rovigo Municipality).

The following table below presents some key data.

Start date	26/09/07
End date	04/03/09
Total months	17
Total beneficiaries	98
Average spending on each beneficiary	1275,26 €
Average monthly total expenditure	7351,47 €
Average monthly expenditure per capita	334,16 €

The following data show that most beneficiaries are disabled people or people with health problems: over 60% of the budget granted is targeted towards this (support and inclusion) area while 39.9% (inclusion area) benefit unemployed persons.

Alcohol addiction	19,61%
Drug addiction	5,88%

Psychiatric diseases	1,96%
Handicap	19,61%
Psycho.social diseases	7,84%
Disabled over 60	5,88%
Unemployed	39,22%

The Municipality report (Verbale di deliberazione della Giunta Comunale n. DLG/2009/33 , Rovigo Municipality) highlights that the beneficiaries and their relation with the programme in different ways depending on whether they are framed within the inclusion or support area:

- support: the end of the relation coincides with the acquisition of a pension, disability, or social contributions, in absence of this the prospective for the beneficiary is the extreme poverty;
- inclusion: the allowance is no longer granted when it is considered that the user has the capacity to actively seek work, based on the consideration that "is considered counterproductive to maintain a condition that could cause dependency and welfare liabilities".

It is evident that there is a trend indicating a wrong understanding of the Basic Income as:

- an *una tantum* contribution to disadvantaged groups;
- a support grant related to active employment policies.

This approach does not acknowledge Basic Income as a universal right, one that should provide concrete answers to the economic and social transformations that the current crisis is showing, as argued by Dani Raventós & Ruben Lo Vuolo (2009) ('Basic Income: good in the boom essential in the crisis', On Line Opinion. Australia's e-journal of social and political debate, July 16, 2009, <http://www.onlineopinion.com.au/view.asp?article=9172>).

In Italy the BIN network is providing relevant data and rationale to stimulate the debate around BI and to discuss concrete data and regional contexts implications although it is difficult to draw mainstream politics attention to BI (see for example Giuseppe Allegri, 2007, *L'indegno silenzio sul reddito garantito di base*, BIN Italy <http://www.bin-italia.org/article.php?id=1481>).

The Italian intelligence magazine *Gnosis*, edited by the Information and Internal Security, in its first 2007 issue included BI (understood as a universal right) among the flags of antagonism, highlighting its radical and revolutionary approach, as its alternative approach to current welfare measures.

LPP considered that the Rovigo Municipality experiment offered an opportunity to compare the two models, the actual Rovigo Municipality "una tantum" model and a virtual "universal right", BI model.

To this purpose LPP collected socio-economic data concerning the whole of the population or a significant part of it from each of the seven municipality of the Veneto Region. The data concern the composition of the population, production areas, welfare measures and active labour market policies. In this way we produce which can relate a great number of or several data for several categories.

The Rovigo experiment data show an elderly average age among the recipients. Through LPP on-line tool, it is possible to access and to view data concerning Rovigo elderly index and to compare it with the provincial and regional data.

The Rovigo Province is located in the south of Veneto Region and the elderly index is the highest and equals 205.31. The following map highlights the elderly index of the Rovigo Province.

employment, or is rich or poor or, in other words, independently of what any other sources of income might be, and irrespective of cohabitation arrangements in the domestic sphere” (Raventos, 2007b).

It's possible to simulate the impact of a BI regarded as a universal right (Philippe Van Parijs, Yannick Vanderborght, , Il reddito minimo universale, Università Bocconi editore). The Rovigo experiment trial involved 98 people, mainly from disadvantaged areas, receiving by the Municipality an una-tantum grant (Verbale di deliberazione della giunta comunale n. DLG/2009/33 , Rovigo Municipality). The recipients involved two main groups of people:

elderly people, with no other access to any form of social security and therefore strongly depending on the experiment allowance;

younger groups considering the allowance a mere contribution to house rent money, basically money buffering emergencies.

LPP adopted a simple approach to the existing data and worked out a simulation based on income tax statements. This kind of income measurement can't be considered as an assessment of wealth and yet it conveys a progressive income measurement's distribution (Raventós 2007a).

LPP applied a formula that consider both the average and the proportion among the different income groups. Through the formula it is possible to run on-line simulations to check different hypotheses and the resulting impact on different income groups. The simulation is based on the aggregated income tax declarations as filed in the seven Veneto Provinces for the fiscal year 2006.

The simulation can be implemented both at provincial and at regional levels, i.e it is possible to simulate the income of one province or of the whole region, in order to highlight to policy makers the budgetary implications for local authorities.

The formula used is as follows:

$$[-BI * ((\text{monthly average income for income categories}) - (\text{monthly average total income}))] / (\text{monthly average total income})$$

the table below shows the data set for the Rovigo Province, so, i.e. to calculate an hypothesis of BI (for instance considering BI = 500€) for the class until 1.000 €, the result is:

$$-500 * [(45,8 - 1444,44) / 1444,44] = 484,12€$$

Considering the provincial data, the monthly income for the range until 1000€, is 484,12€.

€	Frequencies	Amount	Average amount	Month average
until 1.000	302	166275	550,58	45,88
from 1.000 to 2.000	301	447477	1486,63	123,89
from 2.000 to 3.000	277	679408	2452,74	204,39
from 3.000 to 4.000	248	844420	3404,92	283,74
from 4.000 to 5.000	292	1298731	4447,71	370,64
from 5.000 to 6.000	334	1787225	5350,97	445,91

from 6.000 to 7.500	878	5736928	6534,09	544,51
from 7.500 to 10.000	5564	47171731	8478,02	706,5
from 10.000 to 15.000	13856	162063611	11696,28	974,69
from 15.000 to 20.000	12514	198576764	15868,37	1322,36
from 20.000 to 26.000	8344	173386110	20779,74	1731,64
from 26.000 to 33.500	4250	113992717	26821,82	2235,15
from 33.500 to 40.000	1334	44497909	33356,75	2779,73
from 40.000 to 50.000	893	36428656	40793,57	3399,46
from 50.000 to 60.000	382	19166383	50173,78	4181,15
from 60.000 to 70.000	257	15512201	60358,76	5029,9
from 70.000 to 100.000	387	30524992	78875,95	6573
over 100.000	152	24152010	158894,8	13241,23
Total	50565	876433548	17332,81	1444,4

Assuming that this intervention is put in place at the Regional level, it would produce the results summarised in the following table:

€	Income without BI	Income + BI	Percentual difference
until a 1.000	41,37	482,33	1065,75%

from 1.000 to 2.000	119,42	543,31	354,95%
from 2.000 to 3.000	199,11	605,57	204,15%
from 3.000 to 4.000	282,77	670,95	137,27%
from 4.000 to 5.000	362,83	733,5	102,16%
from 5.000 to 6.000	439,07	793,08	80,63%
from 6.000 to 7.500	536,26	869,02	62,05%
from 7.500 to 10.000	700,57	997,4	42,37%
from 10.000 to 15.000	973,99	1211,04	24,34%
from 15.000 to 20.000	1331,04	1490,03	11,94%
from 20.000 to 26.000	1754,06	1820,56	3,79%
from 26.000 to 33.500	2266,53	2220,99	-2,01%
from 33.500 to 40.000	2821,56	2654,67	-5,91%
from 40.000 to 50.000	3458,1	3152,04	-8,85%
from 50.000 to 60.000	4274,51	3789,95	-11,34%
from 60.000 to 70.000	5104,24	4438,27	-13,05%
from 70.000 to 100.000	6530,83	5552,96	-14,97%
100.000 and over	14686,97	11925,88	-18,80%

It is noticeable how this BI measure would benefit incomes up to € 26,000, covering 80% of people with income tax filed in Veneto (having chose IRPEF tax as source of tax data)

The purpose of this tool is to provide a concrete simulation of a BI model, offering an opportunity to researchers to share and to compare simulations on specific territories, with the possibility of tracing common indexes for comparisons. The results can be very easily converted into reports to be released in both digital and paper format.

3. An integrated monitoring and simulation tool – The on-line toolbox to analyse on-line data

The technical tool is available at <http://reports.opencontent.it/Strumenti> (at the moment it requires a username and a password to login). It includes an integration of the CMS eZ publish with a central

relational database (PostgreSQL or MySQL), and it makes use of the following technologies: web GIS3, OpenLayers4, OpenStreetMap5.

It is possible to *connect* data analysis directly to official structured data sources in order to transform *old-style* static analysis into *live (dynamic)* analysis.

The optimal media for the presentation of such live/dynamic analysis is the Internet where, with a suitable interface, people can

- interact with the analysis and customize it to suite their needs;
- easily present their customized analysis to the general public;
- do all the above within a group, using it as a “collaborative/live data analysis toolbox”.

But, of course, the main benefits gained by analysing and publishing on the web is that data can be constantly updated thanks to the direct (live) internet connections to the sources, so it becomes easier to deliver up to date information.

Sources & information retrieval

In an ideal world, all (public) institutions would offer their data in a structured way through the web. This is not the case, of course, and the enormous amount of data that is available on-line largely consists of poorly structured data. However some big institutions started, and there is a clear general will to offer structured data that can confirm this positive trend.

In the meanwhile several information extraction techniques (we can call them *wrappers*) can be manually set up, with the aim to get semantically well-defined data from chosen target sources (e.g. domains): these *wrappers* will, one by one, be dropped once structured data becomes available from data sources.

We have set up several wrappers: some are pretty elaborated, others do something really easy like checking for data format & consistency. We'll go into details later on.

Web interface

Once structured data is retrieved (either by our wrappers or directly from the source) a powerful web-toolbox is needed to make the analysis. Here is what we have designed in details:

LPP opted for two user interfaces:

Basic interface:

This interface is designed to be used by any internet user who is able to interact with a web page to produce some content. Out of the many Content Management System (CMS) available we've chosen *eZ Publish* since is open-source, widely used, award winning and, over all, its extensions meets all requirement necessary to handle the advanced interface (so to guarantee a smooth shift from the two interfaces).

Through this interface a user can focus on the composition of already made graphs and analysis, adding custom labels and descriptive text (which can include hyper-linking to other information on the web), and finally present the results with one of many **layout** already available in the database.

Advanced interface:

Through the advanced interface, a user have direct access to the core of the project. This interface is designed for experienced users who have the need and ability to create data presentations from scratch.

User can select sources and datasets, and all custom functions that need to be applied to these datasets. The outcome will be a **layout** which can be stored for future use with other data. This layout will be available to other users, too, even in the basic interface.

The application is designed to be used by different audience, either as individuals or as a team of people (community decision makers and stakeholders) involved in a common task: research, study, evaluation, decision and so on. Since a team often include users with different background and needs, our framework is designed to help them all by giving the possibility to share the same data between users using both basic and advanced interface (access to the advanced interface is left to more demanding and skilled users of a team).

Once the layout is created, either the basic or advanced user can take full advantage of the following common features:

- data presentation is *live*, it's dynamic, since it's directly linked to the source: if the source is updated, then all functions are also updated, so the whole data presentation will be definitively always be "up to date", too.
- The most interesting updates are, of course, over time. So some of the most meaningful data presentation this application can produce are *Time Series*. Once the layout is designed the presentation is, once again, updated over time as more data become available.
- Data presentation can be "pulled" from this application and included (embedded) into other web pages. Here, once again, a *live* presentation itself can be included (not its snapshot), so to keep it's dynamic nature.

Since data often involve entities with topological or geographic properties, a set of tools have been designed to support the interactive visualization of geospatial data over geospatial layers. Here the emphasis is on human understanding, and visually communicate geospatial information this way allows easier data exploration (and facilitate, this way, decision making process).

Another feature, well appreciated by policy makers and stakeholders, is the ability compare different sources of data related to the same subject/matter; and this can be set up by using different source of data as input and a common layout as the output.

Technical details on information retrieval

Where structured data is already available from some internet servers as a web service: in open standard format (XML, JSON; see <http://data.un.org>), data is pulled to the LPP application and elaborated using AJAX. In this case the connections with data is pretty straightforward.

Data retrieval becomes more complex when data sources are web database *tables*, either in comma-separated values (CSV) or more complex spreadsheets formats: this is often the case with Italian local health authorities (ASL) and even with the Italian National Institute of Statistics (ISTAT) which is the main supplier of official statistics.

Everything becomes much more complicated when Institutions publish their data in the web in a non standard *machine-readable* format. In this case data is just text which needs be examined and parsed. This is done by manually writing custom *regular expressions* that will then be stored and become part of a general *wrapper* which will be applied to that data source any time we need to automatically extract structured data from that specific source.

Technical details on framework components

The framework mainly consist of

- a central relational database (either PostgreSQL or MySQL) which store all data needed by the Content Management Framework we've chosen (eZ Publish). This database include all content added by users.

- A set of libraries (eZ components) used to build all necessary extensions and customization of the basic eZ Publish installation.

Combination of distributed data sources

Connection between the framework and its database is flexible: it can include direct connection to several database in different locations. This way an institution could analyse their *internal* database with our *external* on-line tools, without having to set up a new database (or export their data) or having to install our framework into their servers. In this case there is the need to have, of course, an Internet connection and to set up a secure access from the outside to their data (even if it's just *read-only*).

The framework generate *on-the-fly* graphics by

- connecting to the data source (even local or remote);
- creating a graphic representation in Scalable Vector Graphics (SVG⁶) open standard;
- converting graphics into static images (PNG, JPG) easily readable by any web browser (so the underlying operating system and browser do not matter);
- embedding the graphics in a web page (either into the body of a page, or in the GIS web interface).

Other features

* The platform is connected to external components and remote application, using AJAX: it can make *on the fly* query to a dynamic source of data (e.g. <http://data.un.org>), and output data directly into a local web page into several formats that the user can easily select with a mouse click:

- tables,
- layers in an interactive maps,
- bar, dot, pie charts.

* A specific component integrates graphs and interactive maps, created with GIS⁷ technology, taking advantages of the tremendous possibilities offered by OpenLayers⁸ and OpenStreetMap⁹.

* Multilingual interface: 20 languages are available in both the presentation of the results and the creation of analysis and layouts.

* The component responsible for the parsing of XML data is also able to recognize feeds which encode geographical information such as the emerging standard GeoRSS¹⁰.

Advantages at a glance

Developing *on-line* tools to analyse *on-line* data it is sure not an easy step, but the advantages are many and valuable, summarized as follows:

- easily deliver up to date information;
- results can easily be distributed;
- collaborative analysis is enabled;

- interface is web designed, so can be well accepted;
- software and hardware infrastructure is cheaper;
- analysis can combine distributed data sources;
- platform work across browsers and operating systems;
- results allow for personalization; and
- presentation can easily include hyper-linking to further on-line information.

Notes

1http://en.wikipedia.org/wiki/Web_services

2http://en.wikipedia.org/wiki/Open_format

3<http://en.wikipedia.org/wiki/Json>

4http://en.wikipedia.org/wiki/Regular_expression

5http://en.wikipedia.org/wiki/Scalable_Vector_Graphics

6http://en.wikipedia.org/wiki/Geographic_information_system

7<http://openlayers.org>

8<http://wiki.openstreetmap.org>

9<http://en.wikipedia.org/wiki/GeoRSS>

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