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Introduction of a Progressive Consumption Tax in Italy in Order to Restore the Pre-crisis Level of Real Disposable Income

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Abstract

This paper aims to investigate the decline of disposable income experienced by Italian citizens since the outbreak of the international financial crisis, and to suggest a potential solution for its return to pre-crisis levels. Data shows that from 2000 to 2013, real disposable income has gradually decreased, causing a worsening of living conditions for Italian citizens. This indicates, on the one hand, an increase in the number of people living on a lower living standard compared with the pre-crisis years and, on the other hand, an increase in the budget deficit due to a decrease in tax revenue collected by the Italian government caused by a contraction of consumption. The analysis presented in this paper is based on the System Dynamics (SD) methodology. More specifically, a causal model is initially developed and subsequently transformed into a simulation model that captures the dynamic relationship between the decline in disposable income and the actual taxation system and respective revenue. Therefore, particular attention is devoted to taxation. By definition, when net taxes increase, disposable income decreases. The paper proposes a shift toward a system based mainly on a progressive consumption tax that aims to mitigate the trade-off between the government's need for tax revenue and the citizenry's need for higher disposable income. The result of the SD simulation shows that this reform would promote economic growth and re-launch the country's competitiveness. Explicitly, the SD simulation shows that a radical reform of the taxation system would expand the tax base, relieve low-income families, (potentially) reduce tax evasion, and help in restoring the disposable income of Italian citizens.

Keywords: *disposable income, consumption tax, tax evasion, public debt, savings, System Dynamics*

1. Introduction

Since the explosion of the international financial crisis in 2008, many of the world's economies have been seriously affected, and they have attempted in different ways to overcome the consequences of the crisis. Such attempts were not undertaken only in what are traditionally considered the most fragile economies within the euro zone. For instance, among the strongest economies within the EU hit by the crisis was that of the Netherlands. Since the end of 2008, Dutch private consumption dropped 2.5% (2009); business investment fell 18.2% (2009); and the unemployment rate continued to rise steadily until 2013, when it reached 5.7% (from 3.07% in 2008). To fight the consequences of the crisis, the Dutch government launched several economic stimulus packages that weakened the state's finances. The measures that were intended to promote a sustainable economy included reviving and maintaining employment, supporting businesses, and accelerating investments in infrastructures and housing. About EUR 90 billion (15% of GDP) was spent on trying to revitalize the financial sector. At the end of 2012, public debt totalled about 60% of GDP and, according to recent estimations, will rise further in the coming years. As presented in numerous studies and surveys[1], from 2008 to 2013 Italy has experienced different consequences of the crisis, the most visible of which has been the shrinking of disposable income and, as a result, a decline in living standards. Most recently, public attention has been concentrated not only on Italy, but also on other EU member countries such as Ireland, Portugal, Spain and Greece[2]. The crisis in these countries has followed a similar pattern as in Italy with very important implications, not only for the countries themselves, but also for the common market of the EU. In fact, it has been a mutual concern of other EU member states to find a joint optimal solution (Freedman *et al.*, 2010). However, the discussion has been

[1] See http://www.imf.org/external/pubs/ft/survey/so/2012/car071012a.htm
[2] For more details, check http://ec.europa.eu/economy_finance/publications/publication15887_en.pdf

mainly focused on the macroeconomic level and rarely on an individual (i.e., per capita) level; rarely do such discussions comment on what is happening to the income of Italian citizens.

There are numerous consequences of the current financial crisis in Italy. One of the most visible is the change in the Gross Domestic Product (GDP), which in 2012 fell by 2.40% compared to the level of the previous year. From 2008 to 2013 unemployment rate has almost doubled, rising to the actual rate of 12.9%, while in the same time span youth unemployment, concerning individuals aged between 15 and 24 years, rose to 42.3%. In such a context, it is crucial to try to understand what is happening to the welfare and purchasing power of Italian citizens as measured through changes in real disposable income. Previously, for instance in 2002, GDP per capita was EUR 26,942 and it continued to grow steadily to EUR 31,800 in 2008, when the financial crisis erupted and the Italian economy suffered a serious decline. A partial recovery occurred in 2010 and 2011, but in 2012 the decline in GDP per capita resumed, falling to EUR 30,600[3]. Today, Italy's GDP is well below the level of the other G8 economies[4]. The country is experiencing a serious fiscal crisis; government debt is 134.5% of GDP. Furthermore, the crime rate and the number of homeless people are increasing. Moreover, the rate of Italian citizens (mostly people aged between 24 and 35 years) who leave the country to seek more favourable job markets continues to grow steadily.

The governmental responses to these problems have been numerous in different economies (Di Noia and Micossi, 2009). With regard to Italy, the government cannot use its old techniques of devaluing its currency to increase the competitiveness of its products worldwide; nor can it act on interest rates, i.e., lowering them to stimulate investment and consumption. Rates are now decided by the EU Central Bank, while the value of the currency, the euro, is decided on international foreign exchange markets. Because of this, a tax reform based on the introduction of a consumption tax could be a valid instrument in the hands of the Italian government in order to broaden the tax base, thus allowing the revitalization of the Italian economy through a recovery of consumption.

In this work, by using a computer simulation model, it will be shown how the introduction of a progressive consumption tax[5] will influence the welfare of the average citizen. The OECD[6] defines a consumption tax as a tax paid "in respect of the enjoyment of final goods and services in the country in which they are consumed". Many economists (Frank et al., 2010) agree that a consumption tax system is fairer than an income-based one and easier to administer. Therefore, through tax reform based on the introduction of a consumption tax, the Italian government would be able to rely on extra revenue from a larger base of citizens paying taxes and, as a consequence, be able to reduce income taxes and alleviate the tax burden imposed on households and firms. Therefore, this would allow low-income families to have more revenue to finance their daily consumption, thereby sowing the seeds for a progressive recovery of the Italian economy. In conclusion, the increase in tax revenue with a reduction in tax evasion, which would be easier to control with a system of taxation based on consumption, would in the long term lead to a progressive reduction of the country's enormous debt burden[7].

2. Objectives

In the literature dealing with the consequence of the financial crisis and its effects on the Italian economy, not much has been said about changes in purchasing power. In general, many of the articles focus on how to balance the level of debt, rather than on the decrease in purchasing power of Italian citizens.

[3] See http://mecometer.com/whats/italy/gdp-ppp/

[4] The Group of Eight (G8) was a forum for the governments of the world's eight wealthiest countries (France, Italy, USA, UK, Russia, Japan, Germany and Canada). As of April 2014, Russia was expelled by the original G7 members over its annexation of the Crimea region of the Ukraine

[5] In this paper, a progressive consumption tax is intended as a consumption tax applied in brackets. We distinguish between basic consumption, generic consumption and luxury consumption. Each type will be taxed at a different rate, with basic consumption having the lowest one and luxury consumption having the highest rate.

[6] The Organization for Economic Cooperation and Development (OECD) is an international organization focused on economic and social issues. OECD member nations are developed countries that share a commitment to the principles of democratic government and free market economics.

[7] See http://www.bancaditalia.it/eurosistema/comest/pubBCE/mb/2012/aprile/mb201204/articoli_04_12.pdf

Therefore, the main objective of this paper is to show that the tax reform proposed in this study can be advantageous to the Italian economy, both from national and international perspectives. At the national level, this reform would enlarge the tax base and allow a gradual recovery in consumption that, in the long run, would reduce the level of public debt. In turn, this would produce effects at the international level by increasing the level of confidence among foreign investors in the potential of the Italian economy to come out of the financial crisis and restore the pre-crisis levels of public welfare.

Previously, to restore the country's economy and regain international confidence, EU member states granted Italy a package of austerity measures composed of a bailout allocation and accompanying measures such as privatization of some public assets. However, no clear debt repayment schedule was set. In this regard, the Wall Street investment firm Morgan Stanley noted that "Italy runs the risk of being too big to save" [8]. Italy's debt would diminish if it could drastically reduce spending through austerity programs, but the plan would backfire if it were implemented during periods of weak or negative economic growth. The alternative would be to stimulate growth so that the debt would shrink in relative terms, but unfortunately, Italy has always been a growth laggard[9]. The International Monetary Fund, which is monitoring Italy's debt reduction and economic reform efforts, announced in Country Report No. 12/167[10] that Italy's economy showed one of the worst performances among advanced economies (2012). The option of privatization, although tempting, would require a degree of innovation to make assets with low market value attractive. Therefore, it seems highly likely that different taxation schemes will be used to repay the debt. For all these reasons, the authors believe that only a taxation reform implemented according to the principles of the Social VAT could succeed in the difficult attempt to revive the Italian economy (Langot, Patureau and Sopraseuth, 2011). The base to which consumption taxes can be applied is very large and includes imports, giving the Italian economy some recovery time by making domestic goods more attractive compared with imported goods. This would promote growth and, in due time, relieve the debt burden.

To show the results of such an option, the authors will use a computer simulation model to illustrate some implications of the introduction of a consumption tax. The model is built according to the real structure of the Italian economy, with certain important boundaries: it does not account for inflation, the influence of the private sector on taxes or the relation to the labour market.

3. Methodology

In trying to solve the problem explored through this paper, we made reference to different published works, academic papers and blog entries by experts in the field. Therefore, the main research methods used to answer the research question were literature review, the analysis of publications, as well as System Dynamics modelling and simulation. The data used for this analysis are from the Annual Macro-Economic (Ameco) Database[11]. The Ameco database provides access to the annual macro-economic database of the European Commission's Directorate General for Economic and Financial Affairs.

As mentioned above, one of the outputs of this research is the development of a quantitative System Dynamics (SD) model that will be used to run simulations on a virtual representation of the Italian economy. It will help in assessing the effects of introducing a consumption tax as a tool to increase real disposable income and to test the sustainability of the suggested policy in the medium to long term.

System Dynamics is a methodology used to verify the effects of the policy suggested in this study and its sustainability in the long run. System Dynamics was invented by Jay W. Forrester in the 1960s at the Massachusetts Institute of Technology as a modelling and simulation methodology for the long-term decision-making analysis of industrial management problems (Kirkwood, 1998). Forrester's System Dynamics methodology provides a foundation for constructing computer models "to do what the human mind cannot do" (Forrester, 1968), i.e., to rationally analyse the structure, the interactions and mode of behaviour of complex technological and environmental systems. The method is capable of dealing with

[8] Read more in http://www.morganstanley.com/views/gef/archive/2011/20111215-Thu.html
[9] For more details, see Economic Crisis in Europe: Causes, Consequences and Responses, Economic and Financial Affairs, European Union, 2009.
[10] Retrived from https://www.imf.org/external/pubs/ft/scr/2012/cr12167.pdf
[11] See EC Ameco Database: http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm

assumptions about system structures in a stringent fashion, and particularly for monitoring the effects of changes in sub-systems and their relationships. System Dynamics "is based on a feedback concept of control theory and shows how the feedback loops simulate dynamic behaviors" (Bala, 1999). Validation of the model "is considered necessary so as to compare the model results with historical data and to check whether a model demonstrates plausible behaviour" (Sterman, 2000).

4. The model

The authors began constructing the model by defining the dynamic hypothesis: a decline in (real) disposable income (i.e. a decline in citizens' purchasing power) has many implications, not only for their welfare in the short run, but also in the long run (for instance, at the moment of retirement), as well as other potential political implications due to the dissatisfaction of the citizens/voters. [12] A fundamental measurement for income is real disposable income, which is defined as the amount of money available to be spent and/or saved by households, adjusted for price changes over time. This amount is calculated by the real income reduced by taxes, adjusted for inflation, and meant to be used partly for consumption and partly for savings. As Figure 1 shows, net disposable income per capita, i.e., the taxed real disposable income expressed in per capita terms, steadily increased from 2000 to 2008, and after a fluctuation 2010 and 2011, it started decreasing. It is easy to understand that this decrease makes average Italian citizens worse off; they now have less to spend and/or save.

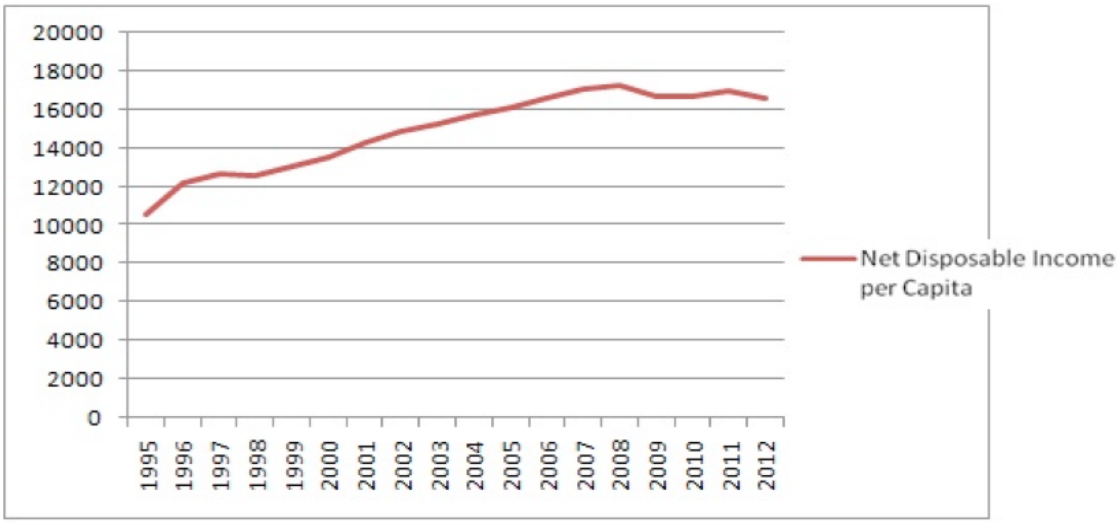

Figure 1 Net Disposable Income per capita. Source: EC Ameco Database (2014)

Lower real income means lower purchasing power, defined as the value of a currency in terms of the amount of goods or services that one unit of money can buy. The consequences of these facts are several. On the one hand, the living standard of people has decreased, creating the fear that the number of people living below the poverty line and lacking the resources to fulfil their basic needs will substantially increase. On the other hand, the Italian government faces an increase in its budget deficit, as inflows generated by the collection of taxes have decreased due to lower consumption. A further loss of confidence by citizens and foreign investors could prove lethal to the Italian economy[13].

The described behaviour of net disposable income per capita is clearly unsatisfactory. It is evident from the above definitions that the goal would be to have increasing net disposable income. We shall attempt to explore if and how one would be able to achieve this goal. Firstly, we need to assess how

[12] For further information, http://www.oecd.org/italy/economicsurveyofitaly2011.htm
[13] Read more in http://www.imf.org/external/pubs/ft/survey/so/2011/CAR071211B.htm

different factors interact in creating a joint effect on net disposable income. The main stock[14] in the model is called Saving (see Figure 2). Three flows affect this stock: the Earning Rate, Income Tax Payments, and Expenses and Consumption. The stock of Saving is consistent with the above-mentioned definition of disposable income: after income has been taxed, part of it is spent and part of it is accumulated in Saving. The Earning Rate comprises all sources that generate income. Ceteris paribus, an increase in earnings clearly increases savings and income: the greater the income, the more available to spend and/or save. The main driver behind the increase in income is salary.

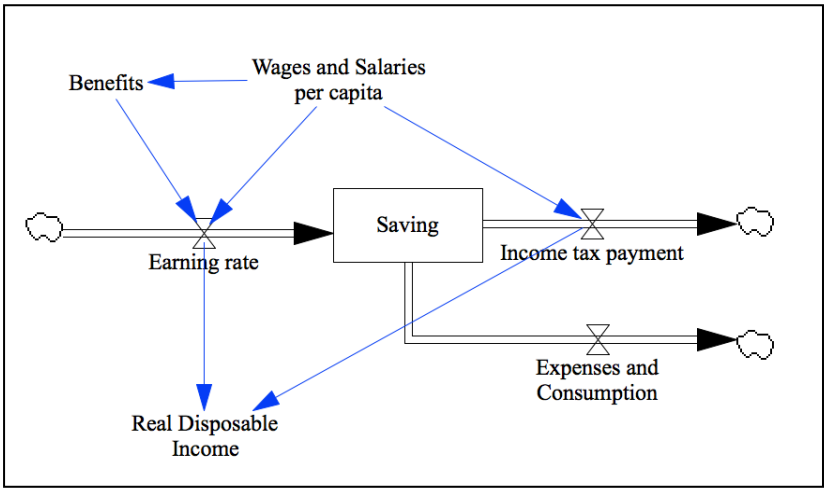

Figure 2 Main stock of the model

Generally speaking, salary is a function of two main components: the minimum salary for which employees will work and the amount employers are willing to pay to keep workers employed. Therefore, parts of the job retribution are also benefits and other forms of compensation. Other components of income are property income and transfers received that, for the sake of simplicity, have all been added under the same variable of Wages and Salaries.

In Table 1, data regarding the yearly Wages and Salaries in Italy between 2000 and 2013 in per capita terms are presented. As we can see, there is a decrease in Wages and Salaries in 2009, a slight increase in 2010-2011, and a decrease thereafter.

Table 1 Wages and salaries (in per capita/year terms)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Wages and salaries (in €)	5994	6336	6609	6810	7024	7351	7708	7959	8177	8057	8151	8272	8243	8155

Source: EC Ameco Database (2014)

[14] In System Dynamics methodology, while Causal Loop Diagrams aid in visualizing a system's structure and behavior, and analyzing the system qualitatively, stock and flow models help in studying and analyzing the system in a quantitative way. Stock (also known as levels, accumulations, or state variables) is any entity that accumulates or depletes over time. Flows are the rate of change in a stock, defining how values of stocks change in time and thus define the dynamics of the system.

The second flow changing the main stock considered herein is that of Expenses and Consumption. As shown in Table 2, the per capita yearly consumption increased until 2008, decreased in 2009, increased in 2010-2011, and decreased thereafter.

Table 2 Consumption (in per capita/year terms)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Consumption (in €)	12611	13025	13396	13828	14204	14623	15160	15589	15843	15510	15924	16300	16017	15754

Source: EC Ameco Database (2014)

According to Confcommercio[15], Italian consumers are anxious about their future and are spending less[16]. This new attitude towards consumption can be explained by three factors:

- Italian citizens expect to earn lower salaries,
- They are worried that they or another household member will lose their job, and/or
- They are paying off existing credit lines.

Consumption is being taxed under Indirect Taxation (in the model expressed in per capita terms) through VAT. Italy is among the countries where the tax burden has grown in the last decade, currently at the 44.6% of GDP. According to the Censis Report of 2013 "the payment of taxes makes that the 72% of Italian families live in a state of continuous anxiety"[17]. This increase, combined with lower per capita salaries, has caused consumption to stall, placing a heavy burden on lower-income families. Lastly, savings and disposable income decrease when the total taxes that need to be paid increase. In fact, taxation is the focus of our attention, since it is the factor that could be acted upon more quickly through a corrective policy. Taxes are composed of Direct and Indirect Taxation. The first is calculated as a portion of the Wages and Salaries collected by the government, whereas the latter is calculated as the proceeds of VAT on consumption. Their sum is part of the factors affecting government tax revenue and, in turn, government borrowing and debt.

[15] Confcommercio is an Italian organization representing companies engaged in trade, tourism and services (tertiary sector).

[16] For more details, http://www.confcommercio.it/-/pil-sotto-il-livello-del-2000-debito-record-crollano-i-consumi-delle-famiglie.

[17] The Censis (Centre for social investment studies), is a socio-economic research institute founded in 1964 that conducts study and consultancy activities regarding many aspects of Italian society with particular reference to welfare and labor market policies.

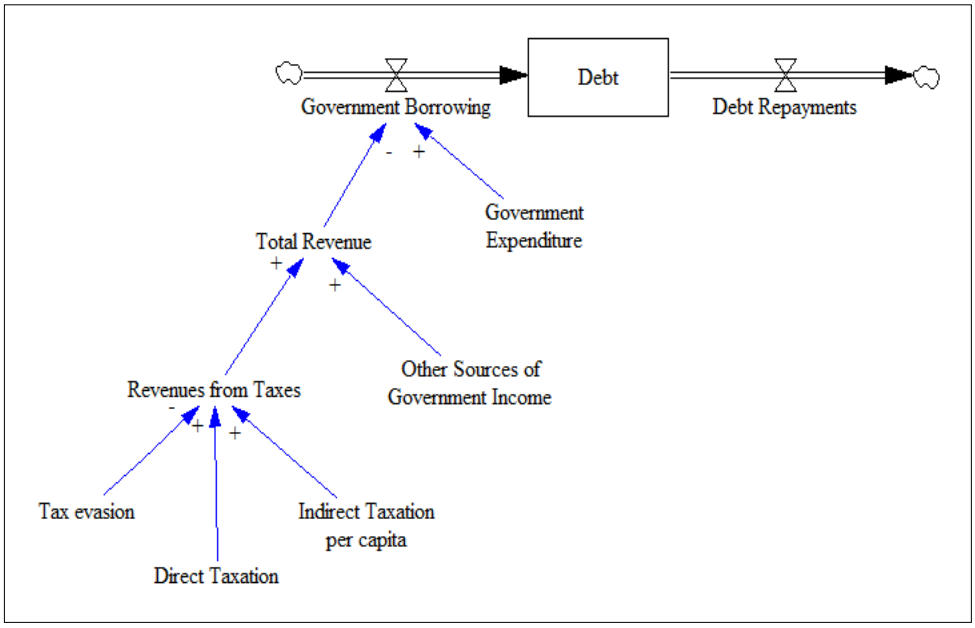

Figure 3 Debt definition

However, government tax revenue is affected by one more factor, namely tax evasion. Zizza (2002) has shown that tax evasion is difficult to quantify with precision. To estimate it for the simulation, we assumed a fixed yearly tax evasion rate. Finally, government tax revenue is given by adding direct and indirect taxes and subtracting tax evasion. Government revenue will be used to cover government expenditures, defining thus the need (or lack thereof) for government borrowing. The higher the government expenditure with respect to total revenue, the higher the government borrowing, thus causing government debt to rise. The debt can be decreased through debt repayments. From 2008 to 2014 the Italian public increased considerably (from 106% to 134.5% of GDP). The government's practice has been to use part of total revenues to repay debt, with the remaining part going toward government expenditures. However, more often than not, the expenditures could be fully satisfied only through additional borrowing, causing the debt to increase continuously.

To prevent the debt from increasing further, additional taxation measures have been introduced. Additional desired revenue is the amount that will be further taxed to decrease the debt (by reducing government borrowing through higher total revenue).

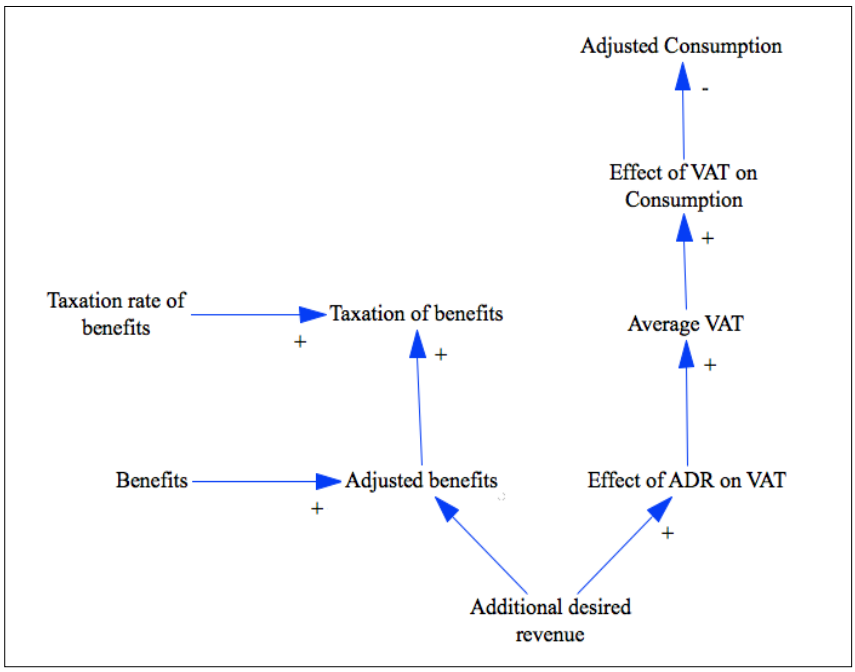

Figure 4 Additional desired revenue

Additional desired revenue affects both direct and indirect taxation: direct taxation through the taxation of benefits as shown on the left side of the diagram in Figure 4, namely by increasing income tax payments through taxation of benefits, and indirect taxation through addition of the VAT rate as shown on the right side of the diagram in Figure 4, namely by increasing the average VAT rate. Thus, an increase in the additional desired revenue causes consumption to decrease, as represented in the model by the adjusted consumption variable.

In Figure 5, a Causal Loop Diagram (CLD) depicts all the important variables and relationships that are captured in the model. Four loops can be identified: two are reinforcing loops and two are balancing loops (the green loops). It is the interaction among them that causes the behaviour of the model. As we can see, an increase in additional desired revenue will have two contradicting effects on government revenue: a tendency to increase from indirect taxation per capita and directly from income tax payments, and a tendency to decrease through benefits. By manipulating the dominance of each loop in the model, we can make each tendency more or less obvious. In any case, what becomes clear from this CLD is that the most important leverage point for policy makers in restoring disposable income is taxation: by reforming taxation, they can improve consumption as well as revenue.

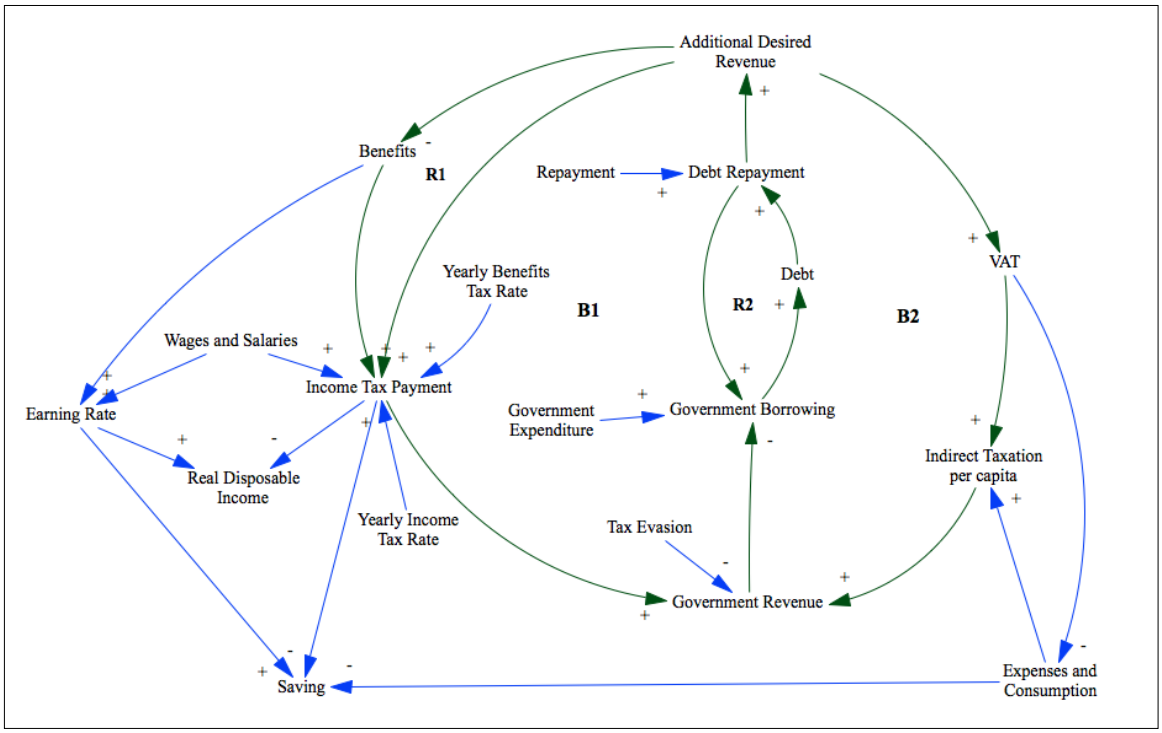

Figure 5 Causal loop diagram

Policy design and implementation

The policy that the authors believe could be appropriate for a gradual resolution of problematic behaviour is the introduction of a hybrid system of taxation that could stimulate consumption. More specifically, the idea is to combine the current taxation system based on income taxation and consumption taxation with a system based mainly on a progressive consumption tax. It is our belief that this reform would promote economic growth. Firstly, with consumption-based taxation, the tax base is substantially increased. Secondly, the increase of the tax base would allow for a gradual reduction of the tax burden among households. Thirdly, the introduction of a progressive consumption tax would allow for a more effective reduction of tax evasion.

Figure 6 shows the result of the SD simulation. The blue line represents the current situation, while the red line shows the reaction of the variable real disposable income once we run the Stock and Flow model with the corrective policy (i.e., the modified taxation). After the introduction of taxation reform, the indirect taxation per capita is calculated by multiplying a weighted average VAT (22%) with total consumption. The introduced policy proposes three VAT categories: VAT basic, VAT general and VAT luxury. VAT basic applies to the basic, most daily-used products that are crucial for the survival and well-being of people. The VAT general, which is proposed to be 23%, applies to general goods considered less crucial, but still at times necessary for daily use. The VAT luxury applies to luxury products at a suggested rate of 40%[18]. As a result, an adjusted average VAT affects consumption, which becomes higher, as long as the consumption of basic products is expected to be higher. At the same time, a dramatic reduction in tax evasion is planned to be implemented from 2012 until 2016. The result of these two policies is expected to increase the indirect taxation per capita without burdening lower income groups, while still gathering higher revenue from taxes.

[18] The proportions of consumption were calculated based on the weight of each category (basic, general, luxury) in the standard basket of consumption of Italian citizens. They served as weights for the average VAT.

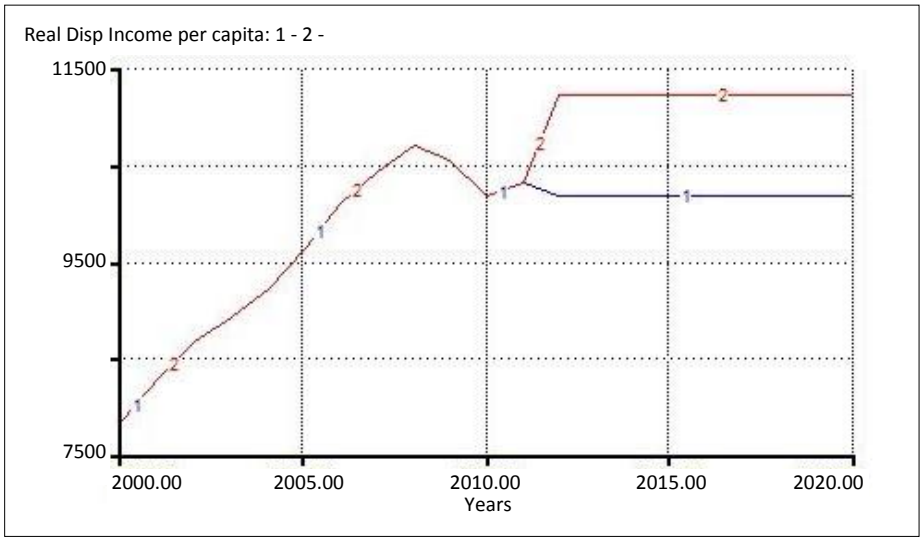

Figure 6 Suggested policy

Simulation shows that the level of the key variable under analysis experiences an immediate shock once the consumption tax is introduced into the simulation. As we can see in the simulation, at the precise moment the consumption tax is introduced, the level of real disposable income grows immediately. Therefore, on the basis of the above-mentioned behaviour of real disposable income, the policy suggested appears to be capable of generating a substantial improvement in the living standards of Italian citizens. In fact, thanks to this intervention of fiscal policy, they will be able to count on more money to finance their consumption or savings. Furthermore, the policy suggested through this study appears to be not only effective, but also sustainable in the long run given that the level of the key variable (real disposable income) of the system, once increased, remains constant over time.

Limitations

Nevertheless, the model presented contains several limitations that must be taken into account if and when one wants to apply its findings to a real-life scenario. Firstly, we have not included inflationary pressures in the model. In fact, we dealt with real variables precisely to avoid including inflation and prices. Secondly, we have not analysed activity in the private sector and how the public-private sector relationship affects wages and employment. Thirdly, variables such as Wages and Salaries and Expenses and Consumption have been defined in per capita/per year terms and population size has been considered constant throughout the period, equal to the average population between 2000 and 2012. As no assessment of the working age part of the population and unemployment rate was carried out, the actual impact of any policy on the labour market and social security and pension schemes is unclear.

5. Discussion and results

Economic well-being is the primary indicator of living standards for most economists and the only one we rely on here. At its broadest, economic well-being refers to the material resources available to households. The concern with these resources is not with consumption per se, but rather with the ability to consume and with the capabilities they give household members to participate in their societies (Sen, 1992).

As discussed above, we believe the implementation of a different and more suitable taxation system will be a key factor in promoting economic growth, while avoiding the creation of disincentives for savings, investing, working and spending. The current system of taxing income, capital gains, payroll, exports and other sources of earnings creates disincentives for individuals and organizations to grow and expand. A fairer system would distribute the burden of taxation more evenly, thus relieving pressure on lower income groups and impoverished households. Our suggestion is to carry out a thorough reform of the

taxation system. At its core, there would be a shift toward a progressive consumption tax system – imposing a tax on goods as a percentage of the value of goods sold – as opposed to a combination of income and consumption tax in similar proportions, which, with a recent increase in tax rates, has become ever more difficult to be sustained by private individuals. More specifically, rather than paying a high tax on earnings, Italian citizens would mainly be required to pay taxes on goods and services that they purchase and consume. With a consumption tax, the number of people paying taxes is broadened substantially, lower-income families are partially relieved of the tax burden, and the actual amount of tax would depend on the amount of money being spent for any purchased item. For instance, lower-income families, who spend a larger percentage of their income on necessities and who may have little to nothing left for consumption of extra, unnecessary or luxury items, would face a lower overall tax burden. Another core assumption of this reform is that of reducing tax evasion, a rather common and highly problematic phenomenon in Italy (Pisani and Polito, 2006). A reform of this range would also be able to reduce the playing field with regard to tax evaders. A reduction in tax evasion could be the result of increased legal deterrence, social policy reforms or, at least, additional pressure from social norms. In this case, the reduction of tax evasion might depend on the combination of several factors. Firstly, it depends on the imposition of more severe administrative sanctions. Secondly, a drastic reduction of the legal threshold of cash payments versus virtual transactions (credit card payments) would ensure greater traceability. Thirdly, improved technology and information systems would help prevent tax evasion (Lacroix and Villeval, 2007). Another perceived advantage of implementing a consumption tax is that such a tax does not affect savings as it applies only to money spent.

A reform of this type has been tested in many countries. Among the numerous examples, Japan is a particularly interesting case (Hatta, 2004). In Japan, a consumption tax was introduced in 1989 at the rate of three per cent and, despite rising to five per cent in 1997, is still the lowest among advanced economies that apply a VAT and well below the European average of 20 per cent. The revenue yield of VAT in Japan is correspondingly low, at about 2.5 per cent of GDP. As discussed by Keen, Pradhan, Kang, and de Mooij in their paper, "*[…] for aging societies like Japan, increasing revenue from raising the VAT is especially appealing for a number of reasons: it provides a stable source of revenue in an aging society; it distributes the tax burden more equitably across current cohorts; and, is less detrimental to growth compared with other taxes[…]",* (2011, p.4). For these reasons, a study is being carried out regarding the possibility of gradually increasing the consumption tax from to 15 per cent over a period of several years, with the final aim of reducing public debt. Other developed countries face a similar issue as Japan faces: they need to lower their public debt ratios over the medium term, address social pressures and foster economic growth. In fact, discussions on the potential introduction of a consumption tax are being held in the United States as well.

Cornell University economist Robert Frank elaborates on this option in an article published in The Economist (Frank, 2010) supporting the introduction of such a tax as fundamental. In his article, he states that *"[…] the most efficient remedy would be to replace the federal income tax with a much more steeply progressive consumption tax. As taxable consumption rises, the tax rate on additional consumption would also rise. With a progressive income tax, marginal tax rates cannot rise beyond a certain threshold without threatening incentives to save and invest. Under a progressive consumption tax, however, higher marginal tax rates actually strengthen those incentives.[…] Should a recession occur, a temporary cut in consumption taxes would provide a much more powerful stimulus than the traditional temporary cut in income taxes[…]".* To conclude, we believe the implementation of a fair and progressive form of consumption taxation would promote growth, help restore the Italian economy to a healthy state and increase the purchasing power of Italian citizens.

6. Conclusion

In summary, we strongly believe that without a radical reform of the taxation system, Italian citizens' purchasing power will constantly decrease, putting them in an increasingly detrimental position. Moreover, the country faces the difficulty of having to repay (or at least retain) debt on the one hand, and that of abiding by EU member states' agreements on the other. Furthermore, the instability of the tax environment represents a major disadvantage in attracting foreign capital and it certainly is the greater

disincentive for domestic investment. Through this paper we have demonstrated that an appropriate policy for a gradual resolution of the problem is the introduction of a hybrid system of taxation that can stimulate consumption. The idea is to combine the current taxation system based on income and consumption taxation with a system based mainly on a progressive consumption tax.

Also, this paper can be used as a starting point for anyone wishing to investigate more in-depth the consequences of the crisis on the private sector, with particular attention to SMEs, as many are expected to close in 2014 and cause a further rise in unemployment. Therefore, integrating the employment module in this model would be an interesting experiment in trying to understand the internal dynamics governing the Italian labour market. It would be interesting to explore which policies could be implemented to reduce unemployment and ensure the long-run sustainability of the welfare system.

7. Areas for future research

The authors believe that, structured in the manner suggested in this paper, a consumption tax would represent an important instrument against tax evasion, a widespread phenomenon in Italy where the tax gap was recently quantified at more than EUR 90 billion. However, this tax reform also has disadvantages. Critics of this type of taxation believe it can produce an excessive increase in administrative and compliance costs. Numerous studies testify that compliance and administrative costs vary from country to country, depending on many factors such as the registration threshold, the number of businesses and the integration with other taxes. Research conducted on five countries[19] revealed that the introduction of a consumption tax requires several enforcement activities, such as audits and record-keeping by businesses that create administrative costs for the government and compliance burdens for businesses. This leads us to believe that even in the case of Italy where, due to the political instability of recent years, the tax authority continuously tries to improve and complete the tax system, thus increasing cost and complexity, it is possible such a reform could produce these negative externalities. This could be an interesting aspect for future research on this topic.

8. References

Allen, F., M. K. F. ,Chui & Maddaloni, A. (2004). Financial Systems in Europe, the US and Asia. *Oxford Review of Economic Policy*, *20*(4), 490-495.

Allen, F., Bartiloro, L., & Kowalewski, O. (2005). Financial Systems of the EU 25in Europe. Retrieved from http://finance.wharton.upenn.edu/~allenf/download/Vita/financial%20system%20of%20the%20eu%20short%20version.pdf

Ameco Database. Retrieved from:http://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm

Bala, B. K. (1999). *Principles of System Dynamics*. Agrotech Publishing Academy,1-G-24, Sector-5, (Gayatri Nagar), Hiran Magri, Udaipur – 313 3002, India. ISBN: 81-85680-34-5

Brown, S., Lynch, A., & Petajisto, A. (2011). Solutions to Restore Financial Stability. Retrieved from http://w4.stern.nyu.edu/blogs/regulatingwallstreet/2010/07/hedge-funds-afterdoddfrank.html

Caprio, G., & Klingebiel, D. (2003). Episodes of Systematic and Borderline Financial Crises. *Manuscript of The World Bank*. Retrieved from http://www.adbi.org/workingpaper/2010/04/19/3657.financial.crisis.gfa.trilemma/references/#sthash.Du2NIhvO.dpuf

Ciccarone, G. A. & Saltari, E. (2009). Gli effetti reali della crisi finanziaria: alcuni scenari possibili. Found in: Oltre lo shock: Quale stabilità per i mercati finanziari. Egea: Milan. Retrieved from www.egeaonline.it/PDF/09f234bb-903f-408b-b699-6bf7df447aca.aspx

Di Noia, C. & Micossi, S. (2009). Keep it simple: Policy Responses to the Financial Crisis, CEPS Paperback, CEPS, Brussels, March.

Economic and Financial Affairs office of the European Union. (2009). The Economic Crisis in Europe: Causes, Consequences and Responses. Retrieved from http://ec.europa.eu/economy_finance/publications/publication_summary15885_en.htm

Falkinger, J. (1995). Tax evasion, consumption of public goods and fairness. *Journal of Economic Psychology*, *Volume 16*, Issue 1, 63-72.

[19] For further information, see http://www.gao.gov/new.items/d08566.pdf.

Frank, R. (2010). All hail the progressive consumption tax. Retrieved from http://www.economistcom/blogs/democracyinamerica /2010/11/inequality _and _executive_pay

Freedman, C., Kumhof, M., Laxton, D., Muir, D. & Mursula, S. (2010). Global Volume Effects of Fiscal Stimulus during the Crisis. *Journal of Monetary Economics, Vol. 57*(10), 506-526.

Forrester, J. W. (1961). *Industrial dynamics*. New York: Wiley.

IMF Annual Report. (2012). Retrieved from http://www.imf.org/external/pubs/ft/ar/2012/eng/index.htm

Istat rapporto annuale. (2012). La situazione del Paese. Retrieved from http://www.istat.it/it/archivio/61203

Keen M., Pradhan, M., Kang, K., & de Mooij, R. (2011). Raising the Consumption Tax in Japan: Why, When, How?. IMF Staff Discussion Note. Retrieved from https://www.imf.org/external/pubs/ft/sdn/2011/sdn1113.pdf

Krugman, P. (2009). *The Return of Depression Economics and the crisis of 2008*. New York: W.W Norton & Company.

Langot, F., Patureau, L., & Sopraseuth, T. (2011). Fiscal Policy in an Equilibrium Search Model: The case against Social VAT. Retrieved from http://www.eale.nl/Conference2011/Programme/papers%20sessie%20B/add157890_GxnkS1ZUGV.pdf

Lippert, O. & Walker, M. (1997). The underground economy: Global evidence of its size and impact. The Frazer Institute, Vancouver. Retrieved from http://www.fraserinstitute.org/WorkArea/DownloadAsset.aspx?id=4187

Maani, K. E. & Cavana, R. Y. (2007). *Systems Thinking System Dynamics: Understanding Change and Complexity*. Auckland: Printice Hall.

Masselink, M., & van den Noord, P. (2009). The Global Financial Crisis and its effects on the Netherland. Retrieved from http://ec.europa.eu/economy_finance/publications/publication_summary16337_en.htm

Morecroft, J. D. W. (2007). *Strategic Modeling and Business Dynamics: A Feedback Systems Approach*. Chichester, Wiley.

Morecroft, J. D. W. & Sterman, J. D. (1994). *Modeling for Learning Organizations.* System Dynamics Series. Cambridge, MA: Pegasus Communications.

Radzicki, M. & Saeed, K. (1993). Proceedings of the 1993 International Conference of the System Dynamics Society, Cancún, Mexico: A Post Keynesian Model of Macroeconomic Growth, Instability and Income Distribution. Retrieved from http://www.systemdynamics.org/conferences/1993/proceed/saeed435.pdf

Richardson, G. P. (1996). *Modelling for Management: Simulation in Support of Systems Thinking*. International Library of Management. Aldershot, UK: Dartmouth Publishing Company

Richardson, G. P. & Andersen, D. F. (2010). Systems Thinking, Mapping, and Modeling for Group Decision Negotiation. Dordrecht: Springer. Retrieved from http://www.albany.edu/~gpr/SDinGDN.pdf

Sen, Amartya Kumar. (1992). *Inequality Reexamined*. Cambridge: Harvard University Press.

Sterman, J. D. (2000). *Business dynamics: Systems thinking and modeling for a complex world.* Boston: McGraw-Hill.

Zizza, R. (2002). Metodologie di stima dell'economia sommersa un'applicazione al caso italiano. Banca d'Italia. *Temi di Discussione*, No. 463.