

Participatory Budgeting (Portugal) as a marshalling innovative legal process to formally and democratically define the EU Monetary System and Policy

Jorge MEIRA COSTA

Guest Lecturer/LLM in Administrative Law

University of Minho/School of Law

Abstract: *This paper explains the legal foundation and presents the empirical results of the XXI Portuguese Constitutional Government's pioneer initiative – The Participatory Budgeting Portugal (PBP) – which consecrates a democratic, direct and universal process allowing civil society to decide on public policies and investments in different governmental areas. The PBP's key objective is to bring people closer to politics and decision-making at a regional and national scale, consolidating the principle of popular sovereignty that has already been exercised locally through one hundred and eighteen participatory budgets. Citizens have recently decided how to spend three million euros in certain areas defined by national government. From the results reported, interesting and concrete conclusions can be assumed and implemented in the next edition already confirmed.*

Since the EU budget faces a tough challenge to fund more with less, the PBP's experience can be leveraged as a European ground-breaking policy in order to guarantee the ontological function of any political and economic organization: that is to ensure the welfare of all persons under its jurisdiction and to impede the retrogression of human rights. The time has come to write and develop lines of code of the EU values by creating a legal environment that enables citizens to participate directly in the design of genuine and logical monetary system, focused squarely to support the strengthening scientific role of the Euro.

Key words: *Participatory Budgeting, International Law, Monetary Policy, Innovation, Behavior Economy*

JEL codes: *D23; D72; D78; D9; E52; E58; E61; F02; F33; H69; K40; O23; O31*

* advogadomeiracosta@hotmail.com

1. Introduction: gamification in public governance

The world is facing on a daily basis an abundant set of systemic destabilizing tendencies – *i.e.* the growing monetary inequality, the lack of assurance and full adherence of fundamental human rights and freedoms, the worrying trend of decreased trust in political and democratic institutions – which promotes the appearance of collective intelligence movements and reactive manifestations from citizens¹.

These forms of participation contribute not only to problem solving, but increasingly call for creative avenues for engaging public policy-making. This process is ultimately called *Public Gamification* which consists on taking something that already exists – *i.e.* a website, an enterprise application, an online community, a competition that is created by an agency, non-profit organization or municipality – integrating game mechanics that motivate participation, engagement and loyalty through Law. In other words, Public Gamification takes the data-driven techniques that other design entities use to engage players, and applies them to non-game experiences to motivate citizens' actions that add value to society.

In Portugal, citizens have been experiencing a serious and transversal lack of confidence in the pillar sectors of society, for instance: political system, financial system, agriculture, fisheries, protection of the forest, health, education, media, intelligence services and justice where the administration and application of the rule of law isn't effectively and efficiently applied.

As a consequence the Political Programme of the XXI Portuguese Government established the compromise to create a participative budgeting nationwide, based on the constitutional premise that the Government, the Parliament and the Courts administrate the *res publica in the name of the citizens and for the citizens*. It is Portugal's will – and not only the Government's will – to take care of democracy by allowing any Portuguese individual or foreign citizens who have the legal right to stay in Portugal, aged 18 or more, to elaborate and choose its favourite public policies² and clarifying their price formation and development.

¹ See Sgueo, Gianluca, Gamification, Participatory Democracy and Engaged Public(s), a research paper presented at the Institut Für Gesellschaftswandel und Nachhaltigkeit – Vienna University of Economics and Business available in <http://www.academia.edu>, p. 4

² See Leitão Marques, Maria Manuela, The Audition of the Ministry of the Presidency and Administrative Modernization, given in front of the Budget, Financial and Administrative Modernization Parliamentary

2. Participatory Budgeting Portugal: legal foundation and technical principles

2.1. Legal Foundation

Experiences in Portugal reveal that citizens effectively participate when asked what they wish for their cities³. As so, the national participatory budgeting constitutes an excellent opportunity to build a sustainable political project of citizen participation, promoting a greater integration between territories by means of nationwide projects.

Following the planned, the Parliament has approved the Law n.º 42/2016 that has been published on the 28th December 2016, approves the State Budget for 2017 and consecrates in article 3 the creation of the Participatory Budgeting Portugal (PBP) competition.

In accordance with article 3 number 5 of the mentioned law and in conformity with the article 199 subparagraph g) of the Portuguese Constitution that prescribes as follows “*It is up to the Portuguese Government to practice, in the performance of its administrative functions, all acts and to make all the necessary measures to promote socio-economic development and the satisfaction of collective needs*”, the implementation of the PBP is regulated by the Council of Ministers Resolution n.º 25/2017 officially published in the Official Gazette of the Republic of Portugal, 1st series – N.º 21, of 30th January 2017. In this case the said resolution defines the technical principles, methodology and procedural legal rules applicable to the PBP’s 1st edition.

The Participatory Budgeting Portugal’s key objectives are: a) to reinforce the quality of democracy, valuing participatory democracy in the Portuguese Constitution framework; b) to involve citizens in the decision processes by promoting an informed and active participation; c) to urge social and economical cohesion, powering the emergence of projects that link citizens from different places. Thus, these goals are undoubtedly integrated in articles 1 and 9 subparagraphs b), c) and d) of the Portuguese Constitution exalting the legal foundation of our social contract: people’s will and the fundamental task of the State in guaranteeing the full compliance and respect of fundamental rights, freedoms and the principles of democratic rule of law in order to foster social and individual wellbeing, real equality amongst the Portuguese and effective enforcement of

Committee on the 10.05.2017. Available at <http://www.parlamento.pt/ActividadeParlamentar/Paginas/DetailheAudicao.aspx?BID=105120>

³ In the last ten years 118 from 308 municipalities have adopted the participatory budgeting locally distributing 91 million Euros which represents a growing tendency of innovative and efficient methods of political participation.

economic, social, cultural and environmental rights through the transformation and renewal of social and economic structures.

2.2. Technical Principles

Nevertheless we will see that this openness to citizen participation is somehow technically watered-down.

2.2.1. The principle of interconnection between theme and territorial scopes

For instance projects admitted to the competition whose scope refers to Continental Portugal can only be related with the areas of Culture, Agriculture, Science, Education and Adults Training. On the other hand projects oriented to the autonomous regions of the archipelagos of Azores and Madeira must be related to Justice and Internal Affairs.

Besides, there are two territorial categories: regional and national. The proposals with a regional range must have an impact at least in two municipalities of the same NUTS II⁴ or of each autonomous region. While nationwide proposals are the ones who create an impact at the very least in two NUTS regions or autonomous regions, we can say that there exists a clear intention of the legislator to impose boundaries in citizen activism by establishing a mandatory interconnection between themes and territorial scopes.

2.2.2. The principle of the award allotment

Citizens decide where to invest three million Euro. This budget amount is defined according to the common practices used by worldwide public gamification experiences, whose first editions usually involve small financial amounts considering the need to test and uphold criteria.

Besides, the eight proposal group winners – i.e. National Projects, the five continental regions (North, Centre, Lisbon Metropolitan Area, Alentejo and Algarve), the Autonomous Region of Azores and the Autonomous Region of Madeira – are entitled to share the same amount of money, which is € 375.000,00 (three hundred and seventy five thousand Euro).

The Government intention is to provide a budget allocation to every group proposal in order to ensure the existence of project winners in all regions.

However regions own development and the evolution of inter-regional synergies are undermined due to the small size of the award as so its allotment to the forty two winners⁵.

⁴ The Nomenclature of Territorial Units for Statistics (NUTS) is developed by Eurostat and employed in Portugal. The NUTS II regions correspond to five regions located in Continental Portugal – v.g. North, Centre, Lisbon Metropolitan Area, Alentejo and Algarve – administered by the respective Commissions for Coordination and Regional Development, plus the alluded two autonomous regions of Azores and Madeira.

⁵ See the winners of the competition in <https://opp.gov.pt/projetos-vencedores>

2.2.3. PBP's administrative procedure and proposal requirements

The PBP has two main phases: the phase for presenting proposal and the phase for voting the projects.

The phase for discussion and presenting proposals has taken place between January and May 2017. All proposals for the PBP must have been formally presented in person and in one of the participatory meetings confirmed in several cities throughout the country. This requirement is required so that the correspondent proposal could be subjected to technical scrutiny to the responsible committee.

Additionally proposals that have been considered eligible have cumulatively reunited the following conditions:

- a) Match the topics identified in article 4 of Council of Ministers Resolution n.º 25/2017, i.e. Culture, Agriculture, Science, Education and Adults training, Justice and Internal Affairs;
- b) Transparent and detailed scope, identifying the model of execution and delimiting the territorial area in order to allow the respective analysis and cost evaluation;
- c) Do not imply the construction of infrastructures;
- d) Do not configure support requests or provision of services;
- e) Do not counteract Government policies or existing projects or programmes;
- f) Technically feasible;
- g) Not too generic or too wide-ranging, not allowing its transformation into a project;
- h) Don't exceed the € 200.000,00 (two-hundred thousand Euro) amount and the deadline execution of 24 months;
- i) Have impact at least in more than one municipality in case of a regional proposal; or in more than one region in case of a proposal with national scope.

Before the publication of the final results, candidates have the right to complain, within the stipulated time, from: the decision regarding the model adaptation of proposals into projects; the decision of not transforming a proposal into a project; finally, the decision to reject the proposal founded in one or more of the previous mentioned eligibility requisites.

As a result only eligible proposals are transformed into projects indicating the respective budget and project execution timetable.

Afterwards, the voting phase has taken place between June and September 2017, every Portuguese citizen or foreign citizen legally authorized to live in Portugal, over 18 years old had the right to two votes – one for regional and another for national projects – exercised through the online portal <http://opp.gov.pt> or SMS (Short Message Service),

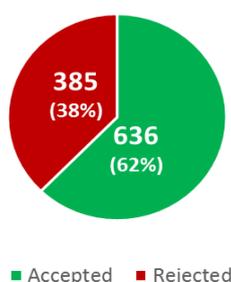
followed by the introduction of the respective citizen or temporary/permanent resident card number.

The winners of the competition have been disclosed on the 15th September 2017 and the results are published in the online portal of this public contest.

Finally, all parties participating in the PBP have made a performance assessment of the contest in order to promote better cost-benefit efficiency and legal effectiveness, thus reinforcing the application of general principles of law foremost: sound administration, close collaboration between citizens and public institutions and last but not least public interest derived from citizens will.

3. Overview of the results of the Participation Budgeting Portugal

Currently in order to establish the level of acceptance of PBP 1st edition we have collected data from the competition website which accounted a total of 1021 proposals⁶.



From the universe of proposals we can affirm that a substantial number of proposal have been accepted – i.e. 632 turned into an acceptance rate of 62% – in comparison with the rejected ones that represent 35%.

Figure 1. Number of Proposals

The majority of proposals are geared towards regional aims.

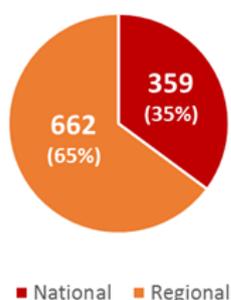


Figure 2. Proposals territorial scope

Data Reporting Period	Place of Residence (NUTS - 2013) (1)	Resident Population (N.º) per Place of Residence (NUTS - 2013), Sex and Age Group; Annual	
		Population	Percentage
2016	Portugal	10.309.573	100%
	Mainland	9.809.414	95%
	North Region	3.584.575	35%
	Lisbon Metropolitan Area	2.821.349	27%
	Centre Region	2.243.934	22%
	Alentejo	718.087	7%
	Algarve	441.469	4%
	Autonomous Region of Azores	245.283	2%
	Autonomous Region of Madeira	254.876	2%

Source: INE – Resident Population (N.º) per Place of Residence (NUTS - 2013), Sex and Age Group; Annual - INE, Annual Estimative of Resident Population

As we can see through Figure 2. six hundred and sixty two proposals have a regional purpose, representing 65% of the total universe in comparison with the three hundred and

⁶ All the competition data provided in this paper is available in PBP’s website <https://opp.gov.pt/>

fifty-nine national proposals corresponding to a percentage of 35%. Supporting our analysis we have imported Portugal’s most updated demographic information chart through the National Institute of Statistics also called Statistics Portugal⁷ to see if there is a direct correlation between the number of proposals and the density of population of each region.

	Number of Proposals	% Proposals	% Population
North	277	27%	35%
Center	305	30%	22%
Lisbon Metropolitan Area (LMA)	59	6%	27%
Algarve	101	10%	4%
Alentejo	204	20%	7%
Azores	24	2%	2%
Madeira	51	5%	2%
Total	1021	100%	100%

Figure 3. Correlation between Number of Proposals and Demographic Rate

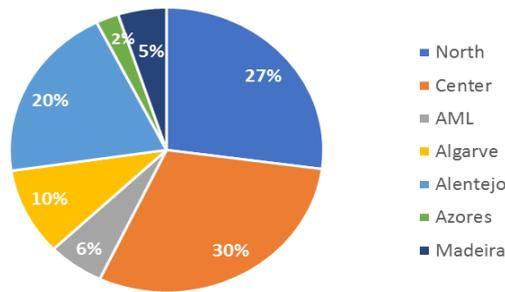


Figure 4. Proposals per region Rate

A look to Figures 3. and 4. enables us to report that the North, Centre, Alentejo and Algarve regions are the ones who have a higher level of participation. Notably the rate of proposals from Alentejo (20%), Algarve (10%) and Center (30%) regions exceeds the respective demographic rate. In contrast the Lisbon Metropolitan Area which represents one of the most populous and urbanized regions presents a very low rate of participation (6%). Eventually the fact of being an area directly linked with a big metropolis – city of Lisbon –, the lifestyle of its habitants and PBP’s range and low budget mostly oriented to regional proposals may have contributed to the objective discrepancy seen between the number of proposals and the region’s demographic percentage.

Furthermore Figure 5. below is an interesting indicator to ascertain the democratic participation indicators in the country. Thus, from the total of 51 participatory meetings

⁷https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&contecto=pi&indOcorrCod=0008273&selTab=tab0

held in 47 cities throughout the competition – remember that a formal requirement to access the competition is to present the proposal orally in one of these meetings – we can affirm that three of the TOP 5 cities – v.g. Porto, Viana do Castelo and Arcos de Valdevez – are located in the North region of Portugal. On the other hand four of the BOTTOM 5 cities – i.e. Leiria, Guarda, Santarém and Beja – are respectively located in the Centre and Alentejo Regions and represent district capitals.

TOP 5 Cities		BOTTOM 5 Cities	
Porto	87	Beja	1
Aveiro	58	Leiria	2
Alenquer	57	Vila Nova de Gaia	3
Viana do Castelo	48	Guarda	5
Arcos de Valdevez	47	Santarém	5

Figure 5. Top and Bottom 5 Cities Proposals

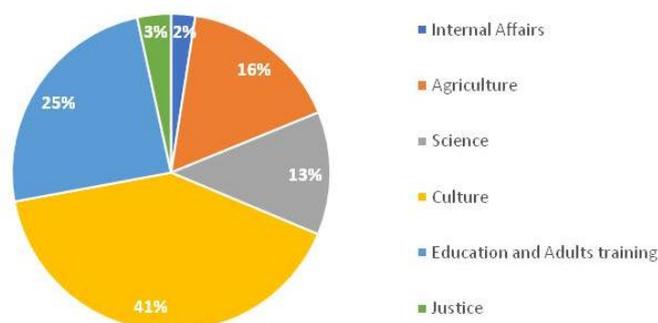


Figure 6. Proposals Rate by Subject

From Figure 6. we can state that culture is the area with the highest rate of proposals (41%), followed by Education and Adults training (25%). Conversely Justice and Internal Affairs have lower participation.

Área	Proposals	Accepted	Rejected	Acceptance Rate
Internal Affairs	25	8	17	32%
Agriculture	167	95	72	57%
Science	128	99	29	77%
Culture	416	308	108	74%
Education and Adults Training	250	114	136	46%
Justice	35	12	23	34%
Total	1021	636	385	62%

Figure 7. Proposals Acceptance Rate

A content review of Figure 7. demonstrates that science and culture proposals have, despite the fact that the first ones represent a small percentage of the 1021 (one thousand and twenty-one) proposals universe, the highest acceptance rate – v.g. respectively 77% and 74% differing from justice and internal affairs.

Still, only 601 (six hundred and one) proposals become projects due to the fact that some candidates have decided to merger their proposals in order to become stronger contestants. So the final number of projects for a vote is divided in two main categories: the regional category that has 399 (three hundred and ninety) projects corresponding to 66% of the full universe of accepted proposals against national projects with 202 (two hundred and two) projects that represent 39%.

Concurrently a reverse view comes from the three hundred and eighty-five rejected proposals. As shown in the results set down in figure 8. we can assert that Portuguese citizens have shown a significant desire to participate directly in the build and design of other public policies that are not predicted in the PBP’s regulation. This statement almost represents 1/3 of the rejected proposals as the percentage of 29% indicates. Subsequently the Evaluation Committee has rejected a great number of proposals by virtue of describing these as technically unenforceable (15%) or as cases that configure support requests or service provision (15%). Also the percentage of rejected proposals alluding to ideas that counteract current government’s programme and running projects and proposals (12%) can be interpreted as a sign of lack of awareness by the citizens in question.

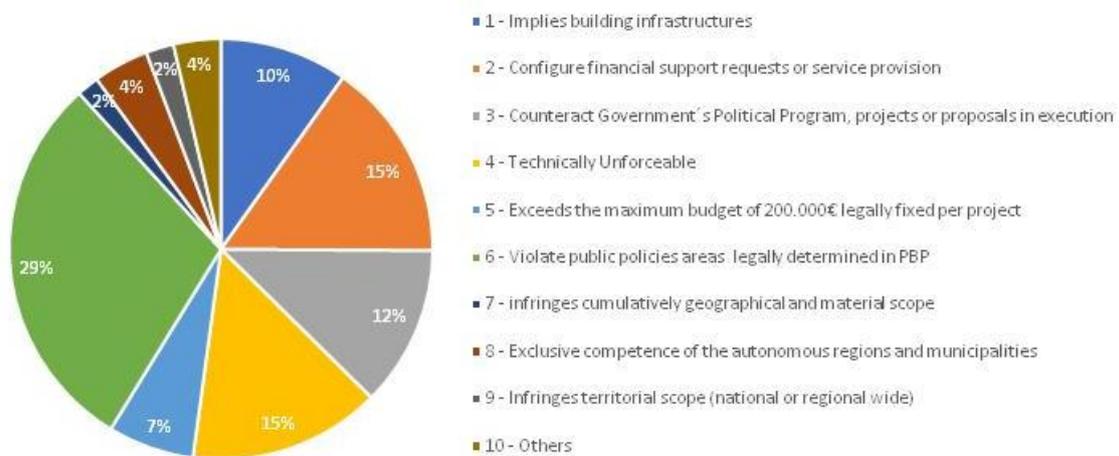


Figure 8. Percentage of Rejections

A different approach can be extracted from the thirty eight winner projects, since 95% of them cover a regional area, which corresponds to thirty six projects that involve two or more municipalities part of the NUTS II defined regions, as show in the figure below.

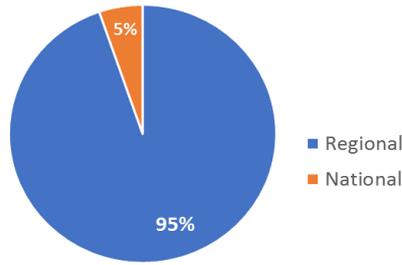


Figure 9. Winners Proposals by territorial scope

Only 2 (two) national projects from the total universe of 202 (two hundred and two) are victorious which shows that the PBP’s must change its name to Participatory Budgeting Portuguese NUTS II or alternatively its financial and legal rules in order to make it more appealing to citizens so that nationwide proposals be submitted and consequently more voted. For this reason maybe the number of 78815 (seventy thousand eight hundred and fifty) votes expresses a number that needs improvement, but never can be interpreted as a sign of indifference from citizens.

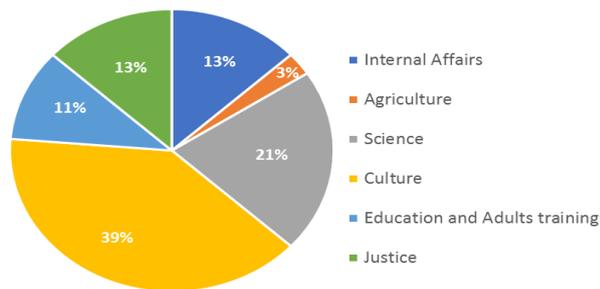


Figure 10. Winners by Subject

The final results of the competition show that 60% of the winners result from cultural (39%) and scientific (21%) fields as we can observe from Figure 10. At the same time and taking into account the projects that have been submitted to vote – see Figure 7. – we can tell that Justice, Internal Affairs and Science are mostly benefited in comparison with Agriculture and Education and Adults training that stand below fair share.

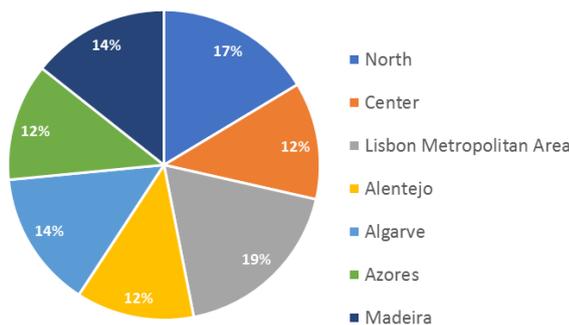


Figure 11. Winners by Region

Finally our analysis of Figure 11. sees that the winner proposals are fairly distributed by regions, contradicting the strong tendencies of direct participation that some regions of the country – v.g. North, Centre and Alentejo – show. Hence the regions of Lisbon Metropolitan Area, the Autonomous Regions of Azores and Madeira stay above fair-share while the most participative regions are harmed.

4. Conclusions

From the legal and data analysis of Participatory Budgeting Portugal 1st edition several conclusions must be learnt in order to create solid foundations to the true goal initially established, that is to put citizens as the main political decision-makers of the legislative process and public investment options.

The brief overview of the results has led us to the following conclusions:

1. In Portugal the phenomenon of Participatory Budgeting is familiar locally but the readiness to participate in a similar initiative at a regional and national scale needs a significant improvement as the almost 80.000 votes in a universe of 9,4 million voters constitute a proof of evidence.
2. The proposals submitted during the first edition are predominantly regional, fact that is undoubtedly related with the small budget of 3 million Euro and its allotment to several categories.
3. Taking as starting point the resident population in each of the Portuguese regions, we conclude that the North, Centre, Alentejo and Algarve regions have shown a significant participatory spirit by comparison with the Lisbon Metropolitan Area one of the most populated regions of the country.
4. Despite the fact that the Government has distributed the prize awards to projects from every region, it is legit to conclude that citizens from the most participative regions have been harmed due to that decision.
5. The same conclusion applies to the Government's winners decision in terms of subject substantiated through the proportional distribution of the prize award to all areas, which means that areas with significant levels os participation – like Education and Adults Training – stay below fair share or with less funds.
6. The projects that have won the competition are legally binding.
7. Last but not least citizens express a wish for a greater importance of other values that are not part of the current PBP's regulation.

Thus we can say the success of this research consists mostly in that it is the first of its kind in terms of this public game – i.e. PBP – and gives guidelines for the 2nd edition with a

more detailed assessment of the changes that need to be introduced. At the moment, while still processing the results, the Portuguese Government has already made publicly three important assumptions regarding the PBP's 2nd edition:

1. The PBP will have a budget improvement setting a five million euro award;
2. The PBP will be extended to all public policies enshrined in the Portuguese Constitution and the Treaty of Lisbon, including the possibility of presenting proposals with mix subjects.
3. Respecting the fundamental right consecrated in article 48 of the Portuguese Constitution that says "*Every citizen has the right to take directly part in Portugal's political life and in the direction of all public affairs*", the PBP's will function as a legal instrument of consolidation of the mentioned fundamental right, allowing citizens to submit and participate through vote in the construction of their monetary and economic policies.

Despite the fact that the 1st edition has brought up some of the limitations that have been equally reported worldwide⁸, the on-going process of innovation of governance leads us – like many other citizens, individually⁹ or collectively¹¹ – to participate in the construction of a better world, improving and strengthen consensus between citizens, governments and other international entities through Law.

Since we are celebrating 20 years of Currency Board in Bulgaria that will take over the Presidency Mandate of the EU Council on the 1st July 2018, we propose the introduction of participatory budgeting to European Federalism as a direct and binding legislative instrument for citizens, specifically favouring the scientific and stability role of the Euro in order to fully respect fundamental rights and freedoms established by International and Domestic Law through the redesign of the monetary system and policy.

⁸ See The World Bank, Introduction to the Public Sector Governance and Accountability Series – Participatory Budgeting, edited by ANWAR SHAH, pp. 45-47

⁹ See Sumskeya, Tatiana The Role of Decentralization in the Formation of the Budget System in a Federal State, Economic Alternatives, 2017, pp. 293-306 in http://www.unwe.bg/uploads/Alternatives/8-Alternativi_en_2_2017.pdf

¹⁰ See Toncheva, Rossitsa, Bulgarians are on the way to Modern Barter Exchange System (MBES). An Expert Survey, Munich Personal RePEc Archive Paper No. 76284, posted 18th January 2017. Available online at <http://mpa.ub.uni-muenchen.de/76284/>

¹¹ See Hennette, Stéphanie/Piketty, Thomas/ Sacriste, Guillaume/Vauchez, Antoine, Pour un traité de démocratisation de l'Europe, Portuguese Version, Lisboa, Temas e Debates – Círculo de Leitores, 2017, ISBN 978-989-644-454-9

5. Participatory Budgeting Portugal as a Bottom Up Approach to European Budgeting and Monetary Federalism

The reflection paper on the future of EU Finances, published on 28th June 2017¹², states that EU budget is about achieving the objectives set out in the treaties; on the other hand it is about a budget that provides for public goods of a European dimension single market, or helps uphold our democracy, fundamental rights and basic freedoms, the rule of Law, equality, solidarity, sustainability, peace or the economic and monetary union.

However authorized voices in the current fiat money cartel speculate on the incapacity that Governments and the European Central Banking face in controlling inflation which could lead to the end of the era of fiat currencies as people lose faith in paper money¹³.

Additionally, on the other side of the roadblock, a currency board likely represents a beginning rather than an end in the evolution of monetary systems giving its economy the option to create its own European Central Bank¹⁴, yet according to the HADRIEN SAIAG destroys the official market, develops grey economy, ruins intergenerational contracts, limits the access to finance for new business and leads to a gigantic expansion of inequality and poverty¹⁵. Not to mention that there are plenty of remarkable economists that have already concluded that Central Banks¹⁶ as Currency Boards have been financially aided by the International Monetary Fund to benefit the IMF's own institutional interests, the failed money producer¹⁷ and therefore not sufficient to overcome the inefficiency and instability of the system¹⁸.

¹²See European Commission, Reflection Paper on the Future of EU Finances, 28th of June 2017 available at https://ec.europa.eu/commission/sites/beta-political/files/reflection-paper-eu-finances_en.pdf, p. 4. where the President of the European Commission Jean-Claude Juncker states that *"We need a budget to achieve our aims. The budget for us is therefore not an accounting tool, but a means to achieve our political goals"*.

¹³ Jim Reid, Jim/Nicol, Craig/Burns, Nick/Chanda, Sukanto, Long-Term Asset Return Study: The Next Financial Crisis, 18th September 2017 available at <http://www.tramuntalegria.com/wp-content/uploads/2017/09/Long-Term-Asset-Return-Study-The-Next-Financial-Crisis-db.pdf>, pp. 2-93

¹⁴ See Kopcke, Richard W. Currency Boards: once and future monetary regimes?, New England Economic Review, May/June 1999, pp 21-37

¹⁵ See Nenovsky, Nikolay, Reflections on Currency Boards and Monetary Federalism, MRC Working Papers No 13/2017, January 2017, ISSN 2534-9465, p.10

¹⁶ See Hanke, Steve H./Schuler, Kurt, Currency Boards for Developing Countries: A HANDBOOK, Revisited Edition, International Center for Economic Growth, 2015

¹⁷ See Gertchev, Nikolay The Case Against Currency Boards, The Quarterly Journal of Austrian Economics, Vol. 5, No. 4 (Winter 2002), p. 66 who quotes Nenovsky and Rizopoulos 2002 to claim that the Bulgarian Currency Board was deliberately introduced by the IMF to serve its own interests.

¹⁸ See Nenovsky, Nikolay/Peev, Evgeni/Yalamov, Todor, Banks-Firms Nexus under the Currency Board: Empirical Evidence from Bulgaria, William Davidson Institute Working Paper 555 in https://papers.ssrn.com/sol3/papers.cfm?abstract_id=401640, April 2003, p. 22

In June 2016, the research department of IMF produced a paper “Neoliberalism oversold?”¹⁹ where it states that neoliberal policies have increased inequality, jeopardizing durable expansion and concentrating in the wealthiest 1 per cent much wealth as the rest of the planet’s population combined²⁰.

So the arguments argued by DRAZEN²¹ regarding the fact that politicians, media or the public have not much understanding of the long lags of monetary policy has no solid foundation at all. In this respect we must mention the pioneer paper produced by MEIRA COSTA and GAUVIN MCNEILL (2015)²² where they conclude that there is no scientific and legal definition of money substantiated in the valuable lesson of NARAYANA KOCHERLAKOTA that must be replayed:

“My argument demonstrates the vacuity of three standard explanations of the role of fiat money in an economy: money acts as a store of value, a medium of exchange, and a unit of account. From a technological point of view, we can see that none of these functions really requires money. Money does not represent a new way for society to accumulate wealth. Money does not reduce the costs of transferring resources from one person to another. There is no immediate technological reason that money should be a better numeraire than other goods. The traditional explanations for the presence of money in an economy are more descriptive of its functions than explanatory. The true explanation for money’s presence is that money is a record-keeping device.” He then concludes: “ Monetary economics has traditionally been dominated by the question of how the quantity of money, or the growth rate of that quantity, affects prices and quantities of goods. My reasoning here suggests that this focus is misplaced. Money is a record-keeping device; hence, monetary policy should be designed so that record-keeping is performed in the most

¹⁹ See De Zayas, Alfred, Report of the Independent Expert on the promotion of a democratic and equitable International order to the United Nations General Assembly n.º A/72/187, 21st July 2017, p. 23 apud Jonathan Ostry, Prakash Loungani and David Furceri, “Neoliberalism: Oversold”, Finance and Development, vol. 53, No. 2(June 2016). Available at www.imf.org/external/pubs/ft/fandd/2016/06/ostry.htm

²⁰ OXFAM International, An Economy for the 1 %, Portuguese Version, Available at <http://www.oxfam.org.br/sites/default/files/arquivos/Informe%20Oxfam%20210%20-%20A%20Economia%20para%20o%20um%20por%20cento%20-%20Janeiro%202016%20-%20Relato%CC%81rio%20Completo.pdf>

²¹ See Drazen, Allan Central Bank Independence, Democracy, and Dollarization, Journal of Applied Economics, Vol. V, No. 1 (May 2002), p. 5

²² See Meira Costa, Jorge/Gauvin Mcneill, Marc, A Proposal For Harmonising Current Disparate (Scientific and Legal) Definitions of Money Towards Greater Decidability in the Provision of Justice According to Universal Principals of Law, Monetary and Economic Research Center, 1st Annual Conference, Monetary Policies in the Balkan Region. The Future of the Euro and Eurozone in the Balkans, Sofia, Monetary Research Center, 2015, ISBN 978-619-90797-0-6, pp. 90-110

*efficient way possible. How do we do that? Currently, we do not know. But searching for the answers should lead to a more satisfactory (and robust) understanding of optimal monetary policy.*²³.

The IMF, BIS and other Financial Institutions have publicly assumed their *mea culpa* by proven their scientific incapacity to define a stable monetary policy. Therefore we must conclude that the argument of government and people's ignorance on monetary issues is utterly pure demagoguery.

According to ALFRED DE ZAYAS no international financial institution or agreement is above international law, which means it must fully respect the supremacy of the international human rights treaty regime. Ultimately in the World Economic and Social Survey 2017, the following is emphasized: *“The implementation of an ambitious agenda for sustainable development requires both greater policy space for countries so that they can determine the policies that best reflect their own national context and sufficient flexibility in order to ensure an orderly recover from situations of economic stress, as aimed for in target 17.15 under Sustainable Development Goal 17.”*²⁴.

To solve the potential conflict between making monetary policy responsive to the popular will, seen as a fundamental right and principle of International Law – i.e. Article 21 of the Universal Declaration of Human Rights –, and insulating this policy from the popular will²⁵, whose results throughout History show a lot more than skepticism, the Participatory Budgeting Portugal experience can be taken into a bottom-up²⁶, open, creative European legal process with top-down organizational monetary and economic goals through the lens of collective intelligence and innovation.

As Currency Boards were an invention of the British Empire constructed by Law²⁷ the same can happen with the European Creation of Participatory Budgeting (PB), a legal institute with a unique status that has been widely implemented and whose original design

²³ See Kocherlakota, Narayana R., The Technological Role of Fiat Money, Federal Reserve Bank of Minneapolis, Quarterly Review, Vol. 22, No. 3, pp. 1-11

²⁴ See De Zayas, Alfred, Report of the Independent Expert on the promotion of a democratic and equitable International order to the United Nations General Assembly n.º A/72/187, 21st July 2017, p. 26

²⁵ See Drazen, Allan, Central Bank Independence, Democracy, and Dollarization, Journal of Applied Economics, Vol. V, No. 1 (May 2002), pp. 1-17

²⁶ See Kingsbury, Benedict/Krish, Nico/Stewart, Richard B., The Emergence of Global Administrative Law, Global Administrative Law Series, IILJ Working Paper 2004/1. Available at <https://ssrn.com/abstract=692628>, pp. 39-43

²⁷ Peterson Institute for International Economics, The Revival of an Old Idea in https://piie.com/publications/chapters_preview/20/1iie2229.pdf, pp. 5-6

is self-consciously and behavior aimed at the kind of social transformation that enhances real innovative thinking.

Like JÜRGEN HABERMAS²⁸ *et al.* states it has an uncommon clear vantage point where the formal requirements, architecture specifications, application of scientific principles to system concepts of our Monetary System can be a matter of democratization of political will formation. Starting with a debate between individuals in a public sphere, in the context of shared understandings of action-orientation, the European monetary project design must take place under specific conditions – i.e. inclusion where nobody can be excluded from participating and the absence of coercion – set in a EU Participatory Budgeting regulation that immediately becomes enforceable as law in all member states simultaneously.

For these reasons Participatory Budgeting is a providential, transformative and transitional legal instrument towards the redesign of our Monetary System and Policy. We personally support monetary federalism and the common objective that the Euro needs to strengthen its role as a source of shared prosperity, economic and social welfare²⁹. However because money is not properly defined triggering a “formula 1 race” hierarchy and asymmetry in the world economy between national and federal money, the world screams for consensus and the answer is on the multidisciplinary association of different studies: Science Engineering, Physics, Law, Economy amongst others.

Money is currently synonymous of instability, incoherence, lacking a formal definition since having emerged historically prior to the existence of markets and capitalism. So it is imperative that the legislative power – i.e. International Law – creates new forms of cooperation that can allow the creation of a single monetary language where its formal requirements and architecture unambiguous specifications achieve precision, correctness and completeness in order to preserve the prevalence of fundamental rights and freedoms established in the Universal Declaration of Human Rights and incorporated in other laws.

One of the most challenging task in specification engineering for a multi-agent technological monetary system is to formally specify and architect its components, especially because a multi-agent robotic system is concurrent having concurrent processing, and often having dynamic environments. In this respect we have to appreciate

²⁸ See Baiocchi, Giampaolo/Ganuza, Ernesto, Participatory Budgeting as if Emancipation Mattered, *Politics & Society*, Vol. 42, Issue 1, pp. 29-50

²⁹ See European Commission, The Reflection Paper on the Deepening of the Economic and Monetary Union May 31st in https://ec.europa.eu/commission/sites/beta-political/files/reflection-paper-emu_en.pdf, pp. 1-39

the best efforts of the Scientific Community – v.g. MARC GAUVIN³⁰, JENS MARTIGNONI³¹, HICHAM M. HACHEM³² *et. al.* – in the investigation and combination of regular expressions, first-order predicate logic to define monetary requirements specifications, calculus based technological platform to define the dynamic architecture specifications.

Hence in order that Money becomes a legal institute, a set of concerted rules and principles that enables the formation of typical decision models, assuming internal systemic qualities, presenting a richness that overcomes the sum of the parts, it is mandatory that becomes a public scientific instrument put at the service of social and economic relations and dogmatic approach of Law. The criteria that must preside the formation of any legal institute is a scientific criteria because it just makes sense to empower a certain ruling articulation when it presents an internal unity induced by the multiple formation of decision models. Hereafter starting from the idea of NADEEM AKHTAAR, YANN LE GUYADEC and FLAVIO OQUENDO³³ we propose a formal and innovative approach of money to give legal effect – in order to be international recognized by international courts – by establishing through the Participatory Budgeting the meta-norm of procedural integrity axed on (i) the source, respectability and authority of the norm creating citizen body; (ii) the transparency, openness and neutrality in the norm's procedural elaboration – i.e. requirement specifications constituting of organizational abstractions, organizational rules, role model specifications, protocol definitions followed by the architecture specifications constituting of constructs for specifying static as well as dynamic architecture – (iii) the substantive quality, consistency and overall acceptance (consensus) for the entire discipline of International Monetary Law³⁴.

We want to affirm that there is or will be no legitimacy risk for any European Government when collective intelligence substitutes government's decision-making power if any

³⁰ See Gauvin Mcneill, Marc Passive BIBO Currency – Stable Liquidity for the 21st Century available at <http://www.bibocurrency.com/>

³¹ See Martignoni, Jens Monetary Velocity in a Systemic Perspective, Monetary and Economic Research Center, 1st Annual Conference, Monetary Policies in the Balkan Region. The Future of the Euro and Eurozone in the Balkans, Sofia, Monetary Research Center, 2015, ISBN 978-619-90797-0-6, pp. 72-89

³² See Hachem, Hicham M. Innovation, dynamics and the myths about knowledge, technology and R&D-driven economic growth: an evolving network model, Journal of Innovation Economics & Management 2017/2 (n.º 23), pp. 13-32 DOI 10.3917/jie.pr1.0011

³³ See Akhtaar, Nadeem/Le Guyadec, Yann/Oquendo, Flavio, Formal requirement and architecture specifications of a multi-agent robotic system, Journal of Computing, Volume 4, Issue 4, April, 2012, ISSN 2151-9617, p. 5

³⁴ Pauwelyn, Joost/Wessel, Ramses A./Wouters, Jan, When Structures Become Shackles: Stagnation and Dynamics in International Law Making, The European Journal of International Law, Vol. 25 no. 3, pp. 762-763

legislative procedure ends with a voting phase that is binding. Consequently, the construction of a scientific legal concept of Money – i.e. formal, technical and logical – is the legal foundation that envisages the design of a Monetary Rule of Law evolved into the rule of Science where principles and laws are mutually consistent, striving for the unity of the process of realization of Human Rights Law.

Before it's too late and we adopt new money technologies already in the market – i.e. Bitcoin, Ethereum, Goldmoney *et. al.* – that are being unilaterally imposed, Europeans must demand through its political leaders the implementation of a European Participatory Budgeting with the only and exclusive objective of defining a common legal and scientific monetary system.

Marshalling money, and vote for it, is a fundamental human right derived from the principle of people's will and sovereignty – the moral and legal basis of any democratic political community – that entitles any citizen over 18 years old to directly participate in the elaboration of a common process of transforming the memory and spirit representation of goods and services to a data format that is moved between different parts or agents of a computer programme founded in scientific principles to system concepts, design principles collected from maturing specialized disciplines and metaphysical tenets in the general systems worldview, formulating principles by generalizing from system Laws, assembling system definitions and convergently develops the criteria that must be jointly satisfied by the system “image”³⁵.

The final norms that arise from the competition must be considered as formal constitutional rules so that an economic union like the EU and each of its member States decide afterwards the resources, price stability formation and development that will influence macroeconomic policy, foster efficient and stable exchanges, the movement of factors of production encouraging all members to adjust more rapidly to changing economic conditions.

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³⁵ See Rousseau, David, *Systems Research and the Quest for Scientific Systems Principles*, published in www.mdpi.com/journals/systems, March 2017, p. 13

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