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PERSPECTIVES ON THE LAST QUARTER CENTURY OF RESEARCH IN PUBLIC ECONOMICS*

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The field of public economics has witnessed major developments during the last quarter century. The main drivers of change have been new policy challenges such as increasing income inequality, footloose international capital and globalization, population ageing, global warming, and the response to the Great Recession. The increased focus on empirical testing has been fueled by the availability of better micro administrative datasets, better identification through more credible econometric techniques, as well as new research methodologies, including lab experiments and randomized field controlled trials. This paper provides overviews of general trends of research in public economics from three different important and respected sources and then singles out and highlights several new developments on a short list of research topics.

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JEL classification: H0, H2, H3, H4, H7.

The field of public economics continues to be a dynamic field of study and has witnessed major developments during the last quarter century. Those changes have significantly broadened the scope of the field to include new topics on health, education, urban economics and behavioral economics. Main drivers of change have been the slate of new policy challenges facing governments including increasing income inequality, footloose international capital and economic globalization, population ageing, global warming, and the response to the Great Recession. In addition, this last quarter century has witnessed a continuing trend to test or even challenge existing theories and to try to better connect them to observed behavior in the data. There have been also innovation and discovery, such as in the case of the "sufficient statistic" in policy analysis. The increased focus on empirical testing has been fueled by the availability of better micro administrative datasets, more credible econometric techniques, continuous enhancement of computational power, as well as the incorporation of new research methodologies, including lab experiments and randomized field controlled trials.

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Academic and policy research issues that have been central topics for many decades –such as the distortionary effects of taxes on labor supply and savings– nowadays can be much better researched due to the increasing availability of large administrative data sets. In fact, an increasing number of papers have been using large data sets containing administrative data from tax, social welfare programs, and many other sources. The distinctiveness of administrative data is that they contain information on individuals' decisions and behavior that are much more precise and less prone to measurement errors compared to survey data. Typically, large size of administrative datasets significantly increases statistical power. Administrative data sets offer several additional advantages including longitudinal tracking of individuals, linking the observations with other data sets, and fewer problems with errors, non-response, or attrition of individuals than in the case of traditional survey-based data sets[1].

Recent developments in the field of causal inference have allowed research in public economics to gain rigor in terms of the sophistication and credibility of identification[2]. It should be taken into consideration in the first place that the research community has become increasingly assertive on the limits of correlational studies and their inability to imply causation [Holland (1986)]. Proper identification has been the most frequently fought battle because of the presence of endogeneity, omitted variables and so on. As a response to the limitations imposed by identification problems, the economics literature has been very active in exploring and establishing new applied econometrics techniques such as regression discontinuity design, difference-in-difference, score matching, and synthetic control methods. In addition, placebo or falsification tests are commonly used as supplementary steps to confirm the credibility of empirical findings [Athey and Imbens (2017)].

It is also noticeable that new empirical work strongly focuses on internal validity as a top priority in program evaluation. In particular, Imbens (2010) points to the notion of the "*hierarchy of evidence*" where estimates obtained through formal randomized field and lab experimentations come at the very top followed by quasi-experimental methods. In recent years, there has been increased focus on using randomized filed control trials to address all sorts of public policy topics from public good provision to school attendance or health program take ups. Randomized control trials are currently gaining recognition and popularity especially in helping developing countries design sound policies[3].

Another driver of change in the public economics literature has been the inability of rational economic behavior models to explain actual observed behavior in the data[4]. One main example is the inability of expected utility models –such as Allingham and Sandmo (1972)– to explain actual levels of tax compliance. In these models, compli-

(1) See Card *et al*. (2010). This is one among many recent papers highlighting the importance of making administrative data sets more available to social science researchers for cutting edge research and policy evaluation, following the example of Denmark and some other leading countries.

(2) As important as they are, these changes, perhaps, are not as fundamental as those experienced in the early 1970s with high speed computers becoming available together with large data sets and high performance econometric software [Feldstein (2002)].

(3) See, for example, Banerjee and Duflo (2009) and List (2011).

(4) See, for example, Alm and Bourdeaux (2013).

ance in is driven by the probability of being audited and penalties incurred in cases of evasion. However, given very low audit probabilities, the expected utility framework predicts a much higher tax evasion rate than observed evasion behavior which makes observed rates of compliance highly irrational. Multiple behavioral explanations have been advanced such as "shaming effects," the valuing of public services, or more predominantly the presence of tax morale, or inner ethical values toward compliance.

There has also been continued interest in empirical evaluations of behavioral responses around tax policy reforms, especially when theory is a priori inconclusive. There are many examples of this, such as exploiting the 1986 U.S. tax reforms providing an expansion of the Earned Income Tax Credit to address the impact of taxation on labor supply, the impact of tax incentives to savings for retirement, or the evaluation of the impact of dividends' taxation on corporate investments. In addition, public economists have continued to inform public policy debates at the national and international levels, addressing contemporaneous issues such as the impact of tax structures on economic growth, the domestic effects of abolishing repatriation taxes for multinational corporations, or guiding international agreements on dealing with "tax havens" or BEPS (Base Erosion and Profit Shifting).

In carrying out this review, given the enormous size of the public economics literature, I had, of course, to be very selective in terms of issues selected as well as citations. To some extent, no doubt, the selection of topics reflects my personal biases and interests as a practicing public finance economist. The views reflected here have greatly benefited from reviewing the lectures given over the last 13 years by a selected panel of over 100 public economists during the Summer Schools in Public Economics at Georgia State University[5], but also, of course, from an effort to document how others have perceived these changes, and from an extensive, but necessarily limited, read of the literature. The rest of the paper is organized as follows. Section two provides overviews of general trends of research in public economics from three different important and respected sources. Section three singles out and highlights several new developments on a short list of research topics. The last section concludes.

1. Three bird's eye accounts on the recent evolution of public economics

In this section we provide synthesized overviews of general trends of research in public economics from three different sources that have chronicled the evolution of the field over the past several decades: the special 30th anniversary issue of the Journal of Public Economics, the Handbooks of Public Economics, and the NBER (National Bureau of Economic Research) Reporters in Public Economics. These are three different perspectives. However, as we will see, to some extent there is overlap on what is reported. This is in part because of the overlap in the public economists that have led those publications, but also because the overlap could be interpreted as a sign of confirmation and robustness of what is reported as the main trends.

(5) *http://icepp.gsu.edu/what-we-do/training/summer-school-in-public-economics/*

1.1. 30^{TH} *Anniversary Issue of the Journal of Public Economics*

Even though it is undoubtedly dated, the special 30^{th} anniversary issue of the Journal of Public Economics, which was published in 2002, provides an important perspective on the evolution of the field of public economics since it was first published under the editorship of Anthony Atkinson in 1972. In the introduction to the special anniversary issue the editors at that time –Roger Gordon and James Poterba– indicate the difficulty of summarizing thematic trends in published papers in the Journal, but they also see some trends emerging. First, the literature in public economics became more empirical. While up to 1992 –on the 20^{th} anniversary of the Journal– about one quarter of the papers were empirical, closer to the 30^{th} anniversary, that share was around 40 percent. Also, the editors observe that while there had not been large changes in the topics addressed, there was clear expansion in thematic areas, including education, environmental, tax evasion and political economy issues, and at the same time some decline in taxation issues[6]. In this regard, it is noticeable that as of 2002, the two papers published in the journal that had attracted more citations were on local public good provisions [Bergstrom *et al*. (1986)], and on the related issue of the free rider problem [Marwell and Ames (1981)].

The anniversary issue collects contributions from five distinguished –in academia, but also in some cases in direct policy involvement– Advisory Editors on their perspectives on the evolution of public economics over the last 30 years (1972 to 2002) –and what they see the evolution may be for the next 30 years[7]–. Interestingly, these views are, not surprisingly, often quite different. In the next paragraphs we summarize the views from the five contributors on the roots and developments in public economics over those three decades. There is much less said in these papers on the question of the future of public economics in the coming decades.

There is a widely common point of departure for all the contributors to the anniversary issue up to 1972. Musgrave's 1959 *The Theory of Public Finance* with the three branches of government is the most identifiable common point of departure for all public economists[8], a treatise with a general equilibrium approach but interestingly lacking the econometric references and mathematical developments that we would see in later popular textbooks –such as Atkinson and Stiglitz or later–, Boadway and Wildasin. Other important roots include the Overlapping Generations model (OLG) of Samuelson and others, and common tools such as second best and duality. Slightly breaking up the consensus in the special issue, Laffont (2002) reaches out for a broader perspective on the roots of modern public economics. In his view, the foundations of

(6) Interestingly, the geographic origin of submitted papers has varied over time but with a somewhat declining share of papers from the U.S. and an increasing share from elsewhere, especially from Europe –even excluding the U.K. The editors report that the greatest growth by country in the last 20 years (1982-2002) was in the Netherlands and Spain.

(7) See Diamond (2002), Feldstein (2002), Laffont (2002), Stern (2002) and Stiglitz (2002).

(8) While the allocation and redistribution branches stuck as the main subjects of public economics, most of what Musgrave called the stabilization branch ended up migrating to the field of macroeconomics. However, as Feldstein (2002) points out –some question such as tax incentives and holidays on investment or how unemployment insurance affects unemployment level have remained in the core of public economics–.

modern public economics are associated with the internalization of the important "informational constraints" governments face regarding all kinds of policies and the realization that the state is not necessarily benevolent –an assumption that took strong hold in the VPI (Public Choice group) and the Chicago schools–[9]. Lots of important contributions in between[10], this foundation period culminate with the seminal work of Diamond and Mirrlees (1971) on optimal taxation, which generalized Ramsey's inverse elasticity rule and formally set up the classical efficiency-equity tradeoff in tax structure design [Feldstein (2002), Diamond (2002)].

In a pattern that has been repeated to some degree up to most recent times, the early theoretical advances, such as in optimal taxation, did not easily translate, or not at all, with better informed smarter tax policy reform applications. This has been in part due to the asymmetries on information facing the tax authorities as emphasized by Laffont, but also due to the divorce of theoretical tax analysis from the complexities and constraints of tax administration and enforcement. Some early answers and applications came from the introduction of calibrated CGE models –as we will review in more detail below– but CGE models did not become standard policy tools early on. To a large extent, actual tax reform processes did continue to walk parallel paths for many years forward.

Nevertheless, in the practice of tax reform there were some guiding principles, such as Pareto efficient taxation. The concept recognized that total dead weight losses are not minimized by minimizing the number of distortions, and having to seek a balance between equity and efficiency objectives –but, with multiple solutions [Stiglitz (2002)]–. But again, in practice, the practice of tax reform continued to emphasize the need to minimize complexity, administration costs, and compliance costs. The objective of simplification of the tax structure, and its equal standing with the objectives of efficiency and equity, were not explicitly recognized until much later in the work of Slemrod and others on "optimal tax systems". The work of Slemrod incorporated tax administration concerns and objectives into optimal tax design. As Stiglitz (2002) points out, theory emphasized the desirability of non-linear and highly differentiated taxes to accommodate the heterogeneity of taxpayer responses. The actual practice of tax reform –as in for example the International Monetary Fund sponsored reform programs– put most emphasis on simplification and reduced differentiation –as in the case of using a single VAT rate–. This supposedly further incentivized high levels of informality in developing economies. These are large policy dilemmas that have not yet been satisfactorily solved.

On the question of how the field has advanced over those past 30 years, there is agreement that the field of public economics became more empirical and policy oriented, but has also gained in scope of issues addressed and in theoretical rigor [Feld-

(9) It should not be surprising that Laffont credits the Public Choice group with this contribution. On the other hand, it may be surprising that Laffont's appears to be the only explicit reference to the role of the Public Choice School in modern public economics in the special anniversary issue of the Journal of Public Economics or the two other sources reviewed in this section of the paper.

(10) Feldstein highlights Harberger's (1962) general equilibrium approach and welfare triangle, Corlett and Hague (1953) taxation of complement goods when some are not directly taxable, and Shoven and Whalley (1972) contribution to computable general equilibrium (CGE) modeling.

stein (2002)]. On the empirical work side, earlier papers advanced our understanding of the impact of taxes on labor supply in a broad sense –including the intensive and extensive margins and also forms of compensation, etc.–. Later on, this approach developed into the elasticity of taxable income. Work on the impact of taxation on other economic responses (savings, realization of capital gains, charitable giving, etc.) also flourished, although with different success rates. For example, data difficulties did not allow as much advance on savings behavior responses as in the case of labor supply. On the side of public spending, there were also important empirical advances regarding the effects of government spending programs, such as social security, health, and unemployment compensation. Because many of these programs are implemented with the state governments, policy variations across states contributed to the better empirical identification of the effects. In a related manner, fiscal federalism issues also gained importance in the empirical literature. On the spending side, similarly to the tradeoff in taxation between equity and efficiency, the focus was on the design tradeoffs between achieving the protection target of the program and minimizing behavioral distortions among the beneficiaries [Feldstein (2002)].

There were other less main stream developments, but nevertheless exciting and full of potential [Laffont (2002)]. One of them was the discovery of revelation mechanisms by Clarke (1971) and Groves and Ledyard (1977) who offered new solutions to the free rider problem. This meant the possibility of arriving at the optimal provision of public goods on the basis of the revealed true willingness to pay of taxpayers. It had some practical applications[11], but ultimately its relevance was more significant for the theoretical "revelation principle" in mechanism design. There were parallel contributions in the regulation of public services under asymmetric information [e.g., Baron and Myerson (1982) and Laffont and Tirole (1993)] and corrupt behavior practices [Rose-Ackerman, (1978)].

One final aspect that the anniversary issue brings to our attention is that from a policy perspective public economics has been affected but it has itself influenced the evolving views on what the role of government is. The professional profiles of many of the contributors to the special issues show that fruitful intermingling of academia and policy responsibilities. This is for example the case as chairs of the Council of Economic Advisors in the U.S. (Feldstein and Stiglitz) and chief economists at the World Bank (Stern and Stiglitz). As Stern (2002) points out, while until the 1960s much of the work in public economics –as in Samuelson and Musgrave– assumed strong confidence in government, this belief changed quite radically afterwards. Confidence in the ability of government to do the right thing went markedly down in the 1970s and ended up viewing government as part of the failure, if not with practical hostility in the 1980s (the Thatcher and Reagan years). Not coincidentally, these were the times when the political economy perspective became part of the mainstream in public economics. There has been a rebalancing, no doubt, in more recent times on the value of traditional policy analysis. The goal was to show potential tradeoffs but without leaving out the powerful role of private interests in public policy formulation.

(11) One such application was in fiscal incidence analysis using "revealed" demand curves for public goods as in Aaron and McGuire (1970) and Martinez-Vazquez (1982).

1.2. The story told by the Handbooks in Public Economics

The period of publication of the prestigious five volumes of the Handbook in Public Economics published by North Holland overlaps almost perfectly with the retrospective that interests us in this review paper. As such, these five volumes are a comprehensive witness, among others of course, of how the field of public economics has evolved over the past three decades. The four first volumes of the Handbook were edited by Alan Auerbach and Martin Feldstein starting in 1985 and the last volume published, the fifth, came out in 2013, and added two additional coeditors to the series –Raj Chetty and Emmanuel Saez–.

A bird's eye view of the themes that have been addressed in the Handbooks can provide a revealing account of the evolution of public economics –from the experts' point of view–, for the last three decades. This historical account is, of course, interesting for what it includes, and also for what it excluded. As stated by Kenneth Arrow and Michael Intriligator –in the introduction to the entire collection of Handbooks in Economics–, the goal is to provide surveys of the current state of areas in economics summarizing past contributions and also adding new developments. And that is very much accomplished in the Handbooks in Public Economics.

The collection was fortunate to count on the contribution of Richard Musgrave for the first chapter, with the suggestive tittle of "A Brief History of Fiscal Doctrine". Musgrave summarizes many decades, actually several centuries going back to Adam Smith, of prior contributions in Public Finance. His chapter focuses on public goods, equity and efficiency of taxation and stabilization and debt –largely paraphrasing the contents of his magnus opus 1959 book, *The Theory of Public Finance*– where he lays out the role of government in a modern economy according to three branches: allocation, distribution and stabilization.

What are the important topics in public economics selected to be addressed in the first two volumes of the Handbook starting in 1985? It is interesting that while Musgrave dispatches the issue of efficiency in taxation in just three of the 60 pages his chapter covers, the theme most extensively addressed in the rest of the Handbooks is precisely the efficiency effects of taxes. It is probably not by chance that the second chapter of the collection in volume one by Auerbach (one of the first editors) addresses optimal taxation and excess burdens, and that the last chapter of the collection published in volume five of the Handbook by Piketty and Saez (the latter being one of the newly added editors in volume five) also addresses the issue of optimal taxation of labor income. Almost 30 years apart, these two chapters make it clear that even though there has been change and evolution in public economics, some topics –in particular, optimal taxation– have remained of high importance and presence over the last three decades. To be more specific, in volume one there were several other chapters on the economic impact and efficiency effects of taxation: the impact of taxes on labor supply (by Jerry Hausman), on savings and risk taking (by Agnar Sandmo), and the extraction of natural resources (by Terry Heaps and John Helliwell)[12]. Several

(12) So even though the volume is on Public Economics it could very well be on the Handbook on Taxation instead. Note that for 1983, this largely follow the themes represented in the early NBER Reporters).

chapters in volume two also focus on other tax issues –Pareto optimal taxation (by Joseph Stiglitz) and tax incidence (by Laurence Klotifoff and Lawrence Summers)–.

However, balancing things out, in volume two there are classical reviews of the theory of public goods (by William Oakland)[13], the role of incentives, the free rider problem, and revelation mechanisms in the allocation of public goods (by Jean-Jacques Laffont), and the economics of the local public sector, including the Tiebout model and the empirical determination of the demand for public goods (by Daniel Rubinfeld)[14].

The last two chapters connect with the literatures on the theory of clubs [Buchanan (1965)], private demands for public good [Bergstrom and Goodman (1973)], and revelation mechanisms and ways to circumvent the free rider problem. These were hot research topics in the late 1970s –early 1980s, but these themes have not seen much further development in recent years–.

On the other hand, public expenditure received only limited attention in the two first volumes of the Handbook. There was actually only one chapter on "income maintenance and social insurance" by Anthony Atkinson, which falls squarely in this category looking at the theory, practice and economic effects of the most common programs (pensions, unemployment, etc.). Another chapter in the first volume by Harvey Rosen is possibly in this category, since it reviews the theory and practice of housing subsidies. However, even in this chapter there is considerable focus on taxation issues.

Some other classical themes are also addressed in the early volumes of the Handbook. In particular, there is one chapter on pricing in the public sector (by Dieter Bos in volume one) and a second one on cost-benefit analysis (by Jean Dreze and Nicholas Stern in volume two). These two classical themes have been among those less revisited in more recent years in public economics, perhaps reflecting the fact that they have become more of standard analysis tools in policy applications, especially in the case of cost-benefit analysis. In a similar vein, as another area that has not seen much research growth in recent years, there is also a chapter in volume three on the economic analysis of the law, coauthored by the authority in this area, Louis Kaplow with Steven Shavell.

A different path, with much more current interest in the literature, is developed in the "new political economy" chapter in volume two of the Handbook by Robert Inman. This is a comprehensive review that brings into public economics a broad perspective, including contributions in public choice and also those by political scientists venturing into public economics. The main question is the role of government in the economy and the answers come from different perspectives including the market failure literature of Coase and Stigler, the voluntary exchange model of Wicksell and Lindhal, the democratic social choice literature from Condorcet to Arrow, and the public choice literature from Bowen to Buchanan and Niskanen. A later chapter in volume three on "political economics" and public finance by Torsten Persson and Guido Tabellini complements Inman's previous chapter on political economy,

(13) Local public goods from the perspective of club theory are also reviewed in a chapter in volume four of the Handbook by Suzanne Scotchmer.

(14) Interestingly this paper by Rubinfeld does not link directly with the large literature of the design of decentralized systems based on Oates work on the decentralization theorem.

reviewing majority coalitions on single issues, special-interest politics (lobbying, electoral competition, etc.) and the impact of different political constitutions. Interest on political economy has carried on to more recent times[15].

Volume three of the Handbook that came out in 2002 continued to be heavily focused on taxation issues, still with another chapter on taxation efficiency (by Alan Auerbach and James Hines). It also signaled a renewed interest in capital income taxation issues, such as risk taking and portfolio behavior (by James Poterba), savings (Douglas Bernheim), corporate financial policy (Auerbach), and business investment (Kevin Hasset and Glenn Hubbard). Two additional chapters reviewed tax evasion and tax enforcement systems (by Joel Slemrod and Shlomo Yitzhaki) and environmental taxation and regulation (by Lans Bovenberg and Lawrence Goulder). Both, tax evasion and environmental taxation have been highly fertile areas of research in more recent times.

The fourth volume of the Handbook also published in 2002 offers a more balanced range of topics. Several less traditional topics in taxation –no efficiency analysis– are examined including chapters on tax incidence from partial and general equilibrium perspectives (by Don Fullerton and Gilbert Metcalf), generational accounts (by Laurence Klotikoff), and international taxation issues (by Roger Gordon and James Hines). However, volume four focuses more heavily on analyzing public expenditure programs, with review chapters on public education (by Eric Hanushek), public health care (by David Cutler) and social security programs (by Martin Feldstein and Jeffrey Liebman). Two additional chapters review labor markets effects of social insurance programs (Alan Krueger and Bruce Meyer) and social welfare programs (Robert Moffit).

The last volume, so far, of the series, volume five offers yet the widest scope of papers in public economics. There are still an abundance of chapters on taxation issues, but they tend to be broader based, reflecting more international issues such as how to promote economic development, dealing with the taxation of highly mobile capital and multinational businesses or increasing income inequality around the world. These include taxation and economic development (by Timothy Besley and Torsten Persson), international tax competition and coordination issues (by Michael Keen and Kia Konrad), wealth and estate taxation and the intergenerational transfers of wealth (by Wojciech Kopczuk) and the re-consideration of optimal labor income taxation (by Thomas Piketty and Emmanuel Saez). The broader themes of public economics are also reflected in the review chapters on charitable giving (by James Andreoni and Abigail Payne) and the design of social insurance programs (by Raj Chetty and Amy Finkelstein). Fiscal federalism issues, of high presence in public economics research, get only partial attention in the review chapter of classical urban public finance by Edward Glaeser.

All in all, this brief panoramic view of the contents of the Handbooks in Public Economics shows considerable evolution in thematic interests over the last three decades. Despite the natural spawning of new fields of research based on themes and topics that were before in the core of public economics, the scope of public economics has continued to expand following in the footsteps of new public policy challenges.

(15) See, for example, Alesina and Spolaore (2003) on how economics shapes the size of nations, Acemoglu and Robinson (2012) on the rise and fall of nations, or Martinez-Vazquez and Winer (2014) on the role of coercion and social welfare in public finance.

1.3. *The evolution of Public Economics according to the National Bureau of Economic Research Reporter Briefings*

Yet perhaps the most detailed and illuminating account of the evolution of research in public economics is provided by the NBER Reporters. From 1979 to 2012, (or 33 years) there have been 11 NBER Reporters –approximately one every three years–. However, again, this should not be taken as the definite unbiased account of the evolution of public economics, since the Reporters did reflect the individual interests of the editors over time and also those of the NBER itself, which by mandate always has had a sharp U.S. policy focused research agenda. Nevertheless, we make the argument that the NBER account is likely to be largely representative of the type of research in public economics topics that has been going on over the last 30 years outside the NBER in the U.S., but also in Canada, Europe and around the rest of the world.

The name of the NBER program itself reflects the trends over time in public economic research. The program was born as "taxation and finance" in 1978 under the directorship of David Bradford, and in a couple of years mutated to just "taxation," and became "public economics" in 1991 under the directorship of James Poterba. In the most recent issue available of the NBER Reporter OnLine in 2012, the new directors of the Public Economic Program, Raj Chetty and Amy Finkelstein, report on the changing focus of research in Public Economics for three decades (1980-2010).

Over the past 30 years, there has been a continuous evolution in the methodological approach used, with studies becoming increasingly more empirical –in 2010 more than 50 percent of them were just empirical papers. Thematically, there has been a dramatic decrease on a taxation focus[16]– from close to two-thirds in 1990 to 15 percent of all papers in 2010, and an increase in papers dealing with expenditure programs –from 5.5 percent in 1980 to one-fifth in 2010–, and a more dramatic increase in other areas in public economics (including education, regulation, etc.). More than half of the papers in 2010 were in this "other" category.

In the following paragraphs we will take a whirling chronological tour of topics highlighted in the series of NBER Reporters. The objective is to identify the progression of themes that were prominent at different times over the last three decades; we will be necessarily selective.

Clearly, the late 1970s and early 1980s were dominated by taxation issues, and most often related to corporate income tax. Inflation rates were high and consequently there were concerns about its effects on investment and savings, and the need for indexation. Integration of the PIT and CIT was more or less accomplished in some European countries but not in the U.S. At that time, and leading to the 1986 Reagan tax reform, there was a lot of discussion –lead by Charles McLure and others– about shifting from an income to an expenditure tax base for existing income taxes and the implied tax treatment of capital income. While the adoption of the VAT in Europe and practically in the rest of the world significantly shifted tax burdens to a consumption base, in the U.S., the hope for introducing a VAT evaporated over the years because of a consensus view in Wash-

(16) Within the taxation theme, there was also a decline in the share of paper addressing corporate income tax issues –which represented about half of the papers in taxation on 1990– with an increased focus on personal income tax issues –88.9 percent of the papers on taxation in 2010–.

ington that “it would be a money-making machine” leading to the enlargement of government. This had continued implications in areas such as trade balance and international competitiveness. This is also the time when applied computable general equilibrium (CGE) models were being introduced –by John Shoven and others– for the analysis of potential tax reforms, among many other policy issues.

In the mid-1980s, the low rate of net investment and the slow rate of growth in productivity and what tax systems had to do with it became new concerns. Considerable research effort went into defining and properly measuring “effective tax rates” on different types of activities –corporate or non–, and by type of asset and even form of financing –led by Don Fullerton and others–. There was also a significant increase of attention paid to ‘public finance in systems of governments.’ This included new research on fiscal federalism issues, such as tax exporting, the new view on the incidence of the property tax (led by Peter Mieszkowski and George Zodrow), tax competition (led by John Wilson and others), the role of grants in a decentralized system, the assignment of expenditure responsibilities, borrowing crises of local governments, and property tax limitations, such as Proposition 13 in California. International taxation issues, such as territorial versus global income bases and country tax competition, also came of age at this time. The Reagan Tax Reform Act of 1986, with dramatic cuts in the marginal rate of the PIT from 70% to 33%, also provided fertile grounds within a quasi-experimental setting to revisit classical tax efficiency issues, such as the responsiveness of labor supply (work led by Jerry Hausman and others) or the effect on retirement savings.

The early 1990s saw an increase in tax evasion and taxpayer compliance research (led by Ann Witte and others) and international taxation issues involving supranational integration in Europe or footloose multinational corporations (work led by James Hines and others). This was also the time when a variety of fiscal federalism issues became the focus of new research These included topics such as subnational taxation and the location of firms, substitutability of federal and state welfare programs, and –something that has become an important topic nowadays– federal deductibility of subnational taxes and its impact on subnational public spending. The increasing threat of global warming also led at this time to an emerging literature dealing with the design of green taxes, promising the double dividend of reducing polluting emission and increasing fiscal revenues. The role of “carbon taxes” on fossil fuels remains a very relevant and unfinished policy issue today.

The second half of the 1990s witnessed an explosion of research on the “elasticity of taxable income” that had been introduced by Martin Feldstein as the key empirical parameter for forecasting the revenue effects of tax reform and understanding its implications for efficiency costs. Alternatives to publicly provided services also attracted considerable research at this time, in particular using school vouchers. In a related mode of revising the role of government, the transition to market economies by countries that had operated under planned socialism for many decades renewed the interest in the economics of privatization. Fighting poverty and addressing increasing income inequality gave new strength to studying the distributional impact of social welfare programs, in particular the effectiveness of the “earned income tax credit “(EITC). Interestingly, this latter has successfully operated in the U.S. and the U.K. but it was never adopted by other European countries. Finally, large budget deficits around the world and the search for country member fiscal discipline with the European Monetary Union led to a surge of research studies on the role and effectiveness of borrowing and other fiscal management rules.

The early 2000s saw a return to some classical themes, such as the incidence of the CIT in open economies falling on labor input, the taxation of capital gains effects on savings, and the appropriateness of estate and wealth taxes, or explanations for the decrease in CIT collections. Ageing populations, and increasing problems with the viability of retirement systems, led to an increase in research on how effectively different social security systems work around the world (such as the work of Jonathan Gruber and David Wise). This is also a time of resurgence in "political economy and the role of institutions" research searching for answers for the role of political institutions on the structure of welfare programs, on public spending and fiscal discipline, etc. (with work led by Juergen von Hagen and others).

We finalize the thematic tour of the NBER Reporters with Chetty and Finkelstein's views on the most significant themes that arose in the last reported decade (2000 to 2010) and which, in their opinion, will continue to be active areas of research in public economics. The first is what they call "*Connecting Theory to Evidence*", meaning that with the increase availability of large administrative data sets researchers have been increasingly able to test the implications on individual behavior and the economy of public finance models developed during earlier decades. Important examples of that have been the considerable empirical research on the size of the "elasticity of taxable income," and the impact of social welfare programs. This work has been accompanied by the use of estimation approaches, such as quasi-experimental methods and structural models, which allow a more credible identification of policy impacts. Also in contrast to the more complex structural models, increasing research has focused on the identification of "sufficient statistics" in reduced form estimation which matter most for policy impacts. The second main theme identified by Chetty and Finkelstein is "*Behavioral Public Finance*", incorporating non-optimizing behaviors by individuals in economic modeling, which provides additional motivations and forms (framing, nudging, etc.) for government intervention beyond the classical argument of market failure. As we will see further down, behavioral public finance has opened a plurality of research avenues.

The third main area identified is the "*New Dynamic Public Finance*". In this case, public economics imports insights from advances in dynamic macroeconomic modeling, characterized by less restrictive assumptions on the tools available to governments and forward looking agents who can discount future changes in government policies. The most important new results from this area of research have been in optimal capital income taxation. Contrary to previous theoretical findings, capital income taxation is justified even within infinite horizon economic models. The fourth area is "*Lab and Field Experiments*". Increasingly public economists have generated data using lab and field experiments to analyze economic behavioral responses in a large range of classical topics and examine the effectiveness of different government policies, from taxation to social welfare programs. While the earlier enthusiasm for lab experiments may have subsided a bit out of concerns regarding external validity and scalability, randomized field experiments continue to bloom to examine a large variety of policy issues, and often in developing country contexts where for example administrative data cannot be easily obtained. However, these innovative methodologies have not been without critics[17]. The fifth area highlighted by Chetty and Finkelstein is "*Social Insurance*" with a renewed interest in examining the actual benefits of the different programs and using variations in policies across states as an identification strategy. The final area identified is "*The financial crisis and current macroeconomic events*" with a focus on a variety of related issues such the effects of unemployment insurance and the size of the fiscal multiplier.

2. Selected recent research developments in public economics

In the remainder of this review paper we highlight several topics that have received a lot of attention in recent years, and which seem currently to continue to be of interest to public economists and perhaps for some years to come. As always, the selection is not meant to be representative and must, of course, leave out many other topics that are equally important at present and that will continue to be so in the future.

2.1. Elasticity of taxable income and the sufficient statistic approach to welfare analysis

One of the topics that generated considerable interest in the public economics literature in recent times is "the elasticity of taxable income," a prime example of the broader topic in the literature on "sufficient statistics". The concept was first researched by Feldstein (1995). He noted that a change in marginal tax rates induces several behavioral responses that include, but are not limited to, labor supply responses. In addition to changes in tax compliance or simply more aggressive tax planning strategies, employee compensation could take the form of portfolio investments or additional fringe benefits. In the same vein, higher marginal tax rates could encourage individuals to invest in assets that reduce taxable income such as municipal bonds, stocks with low dividends and higher potential capital gains, life insurance, or annuity products and real estate. Therefore, the idea of elasticity of taxable income is to find a parameter than can reflect all margins of adjustment to taxation since all those responses, and not only labor supply responses, are considered part of the deadweight loss of taxation. This coefficient summarizes in a single measure all of the marginal efficiency cost of taxation.

The basic approach to the estimations of the elasticity of taxable income is to run a regression of the log change in taxable income on the log change in the net-of-tax rate, allowing for year-fixed effects[18]. However, as Saez *et al*. (2012) point out, there are several reasons why the identification of this causal impact might be compromised. First, the relation might be different in the long run than in the short run. Also, the

(17) See, for example, Deaton (2009) and references therein.

(18) Of course, it is not only the tax rates that affect taxable income and deadweight losses. Deductions and other determinants of the tax base have similar effects as pointed out by Kopczuk (2005). Thus, broadening the tax base reduces the marginal efficiency cost of taxation. Kopczuk's point estimates reflects the fact that Tax Reform Act of 1986 in the U.S. reduced the marginal cost of collecting a dollar of tax revenue, with roughly half of this reduction due to the base broadening and the other half due to the tax rate reduction.

double-log specification assumes a constant elasticity over time and across all levels of income. There is also an implicit assumption that individuals are perfectly knowledgeable about the changes in tax structure[19]. Finally, given that the researcher only observes reported income, there might be an omitted variable bias (virtual income).

Considerable effort has gone into developing methodologies that can deliver a more robust estimate of the elasticity of taxable income. A simpler approach is to use "share analysis" or the difference in the share of income accruing to a certain income group before and after a reform divided by the change in the average marginal tax rate faced by taxpayers in this income group. Many more recent papers have relied on diff-in-diff analyses. The idea here is to compare reported incomes for a treatment group that was affected by a change in tax rates to a control group that did not see a change or saw a change of different magnitude. Alternatively, Weber (2014) has proposed instrumenting for tax rates. Other researchers have followed different identification strategies. One such stratgy is to look for alternative control groups as in Saez (2003) and Singleton (2011).

The elasticity of taxable income is an example of using the sufficient statistics approach for welfare analysis[20]. As discussed by Chetty (2008), the sufficient statistic can be seen as a methodological bridge between structural and reduced-form methods of empirical investigation. While the structural approach uses fully specified models of economic behavior, calibrating all the primitives and allowing the simulation of policy-driven changes on behavior and welfare, the reduced-forms models estimate simple statistical relationships with emphasis on identifying causation. The former are difficult to estimate given the presence of heterogeneity, etc. and the latter are of limited value for policy evaluation because the estimated parameters are not policy invariant. On the other hand, as Chetty argues, the sufficient statistic approach combines the advantage of the reduced-form approach of having transparent identification and that of structural models of producing reliable simulation results.

2.2. Universal basic income, negative income taxes, and cash versus in-kind transfers

There has been a long standing dilemma in the public economics literature on what are the best instruments to redistribute income of the expenditure side of the budget. This issue has recently regained notoriety because of the higher unemployment rates and increasing income inequality associated with globalization and technological change in the digital age. In particular, it has been increasingly argued that automation by robots will create massive technological unemployment around the world and that radical solutions such as the introduction of a "universal basic income" will be needed to keep market economies functioning (low income groups have a higher marginal propensity to consume, etc.). Under a universal basic income scheme

(19) Regarding the question of tax salience, Saez (2012) identifies a tradeoff for researchers between the size of the reform and the salience of tax information. Basically, changes produced by large reforms are less likely to generate convincing treatment and control groups. On the other hand, changes produced by small reforms are more likely to generate convincing treatment and control groups but less likely to be noticed by taxpayers.

(20) For other examples, see Chetty (2008).

everyone gets a regular and unconditional –of work or any other source– payment from the government that is sufficient to live on without any other type of income. Although the idea has a long history, it has been discussed recently in countries like Germany or Spain, it is being piloted in Finland and other countries, and was recently voted on and rejected in Switzerland. Beyond its negative incentives on labor supply, this policy is generally considered unfeasible because it is too expensive.

This proposal for universal redistribution in society is reminiscence of the idea of a "negative income tax". The negative income tax was first proposed by Milton Friedman in 1962 in his book *Capitalism and Freedom* and was expanded on in his 1980 book *Free to Choose*, coauthored with Rose Friedman[21]. The idea of the negative income tax is that government provides a certain level of income to individuals even when the recipient has no income or is not working. It then gradually reduces benefits as income increases due to work or other sources, working in the same way as a progressive income tax. Friedman saw the negative income tax as a superior substitute to existing welfare systems which were loaded with a multiplicity of in-kind and cash transfers requiring the identification of potential beneficiaries, and distortionary effects due to very high implicit tax rates. The negative income tax would not only provide better (although not perfect) work incentives, but it would reduce bureaucracy and public spending by eliminating a myriad of welfare programs and also be able to better target the poor. Indeed the negative income tax could be run by the same tax administration –the Internal Revenue Service– running the progressive income tax, and contribute to reduce stigma or negative distinctions between the poor and the rest in society. As Moffitt (2003) indicates, the negative income tax proposal received wide support among economists and it became part of the optimal tax literature as first formalized by Mirrlees (1971).

However, a negative income tax program has never been implemented[22]. The closest thing to it is the Earned Income Tax Credit (EITC) program implemented just in a few countries –the U.S. and the U.K.–. There are many similarities between the negative income tax and the EITC in how they work, but there is also a very significant difference. In order to qualify for the EITC, the recipient must be working, that is, they must already have earned income. This no doubt makes the EITC more work-incentive friendly but it also carries less redistributive impact, especially because it leaves out not only those who do not want to work but also those who cannot work[23].

And yet most social transfers and redistributive programs around the world are in-kind, besides also being means-tested (attempting to target only the poor) and most often rationed[24]. However, economic rationale clearly stands in favor of cash transfers

(21) See Moffitt (2003) for a complete discussion.

(22) It has been implemented experimentally [Ashenfelter and Plant (1990); Burtless and Hausman (1978)].

(23) In addition to no covering individuals that for many reasons are not able to work, there is also an issue with the actual incidence, or who actually benefits from the EITC. As Rothstein (2009) shows, the increases in labor supply induced by the EITC may drive wages down, shifting (part of) the intended transfer toward employers, and he finds evidence of that taking place.

(24) The EITC is not rationed but the negative income tax and the universal basic income program are also rationed.

from both efficiency and welfare points of view. In-kind transfers distort consumer choices and because they are non-tradable, and beyond the administrative costs for their implementation, they likely waste resources since recipients are likely to value the transfers in less than their cost to government (Currie and Gahvari 2007). A considerable literature in public economics has developed in trying to explain the persistence and large presence of in-kind transfers in welfare programs around the world.

Why do in-kind transfers persist as the means to implement redistributive policies? A common explanation is paternalism, with society imposing preferences on welfare recipients or simply implementing some sort of egalitarianism for some services that are deemed to be universal rights or otherwise meritorious. The desirability of government intervention because of some sort of market-behavioral failure –since individuals do not always make the right choices in their best interest–, may be considered another form of paternalism. For example, requiring members of the society to have a minimum level of compulsory education or health services could be stated as an example of a "*merit good*" (Besley 1988). In addition, optimization with interdependent preferences –the rich type of people derive utility from seeing the poor consume certain specific goods– is only supported by in-kind transfers [Currie and Gahvari, (2008); Marton and Wildasin, (2007)].

And yet sometimes, in-kind transfers may end up being more efficient in situations where government has limited information on conditions of the recipients, which may stand as a major challenge for cash redistribution. In this case, one challenge is how to deter undeserving individuals from free riding and abusing the service. This may be achieved by tagging the needy [Ackerlof (1978)] or imposing some participation stigma or substantially greater costs of participation (ordeals) on impostors than on intended recipients [Nichols and Zeckhauser (1982); Blackorby and Donaldson (1988)].

2.3. The size of fiscal multipliers

The experience of the Great Recession that got started in 2008 brought back considerable interest to macroeconomic topics in the public economics literature. In particular, there has been renewed interest in the size of the fiscal multiplier, which measures the short and long-term effects of discretionary fiscal policy changes on output or change in real GDP. The basic question is to what extent discretionary fiscal policy is useful and required in dealing with recessions and boosting economic growth, beyond the impact of automatic stabilizers. These latter come in many forms. In particular, the more progressive the taxation system is the faster it automatically adapts to output fluctuations [Arnold (2008); Attinasi *et al*. (2011); Martinez-Vazquez *et al*. (2011)], while a larger size of government brings less volatility of the entire economy [Fatás and Mihov (2001); Debrun *et al*. (2008)].

Relying on precise estimates of fiscal multipliers is crucial in designing fiscal policies especially with respect to forming correct expectations of the impact of stimulus spending. However, there continues to be very wide variations in estimates provided by the literature with respect to the size of fiscal multipliers. It does appear –not surprisingly after all– that the size of the multiplier depends on a long list of factors [Christiano *et al*. (2011); Gorodnichenko *et al*. (2012); Auerbach and Gorodnichenko (2012); Ilzetzki *et al*. (2013); Battini *et al*. (2014)], including the following: (i) the degree of exchange rate flexibility (the more flexible, the smaller the multiplier); (ii) openness to trade (the more open, the smaller the multiplier); (iii) the government debt level (the higher, the smaller the multiplier); (iv) the rigidity of labor markets in terms of stronger unions and labor market regulation (the less rigid, the smaller the multiplier); (v) the phase of the business cycle (multipliers are large in downturns); (vi) the size of the automatic stabilizers (the larger the stabilizers, the smaller the multiplier); (vii) the monetary policy stand (multiplier is larger when the transmission of monetary policy is impaired –as is the case at the zero interest lower bound–); (viii) and the level of economic development and quality of public expenditure management and revenue administration (multipliers are smaller with less effective governance).

2.4. Fiscal federalism and the broad impact of decentralization

The very significant growth in the fiscal federalism literature in public economics has been driven by the large number of countries that in recent decades have either decentralized or have deepened their decentralized governance institutions, and all the opportunities and challenges that this process has brought with it. In particular, given the popularity of fiscal decentralization reforms among developing economies, and its support by international finance institutions, it has become imperative to clarify the impact of fiscal decentralization on the economy, the society and politics of those countries. In particular, it is important to know whether economic growth and the eradication of poverty or corruption are being slowed down in developing countries with the adoption of decentralized governance [Martinez-Vazquez *et al*. (2017)].

The theoretical roots of fiscal federalism lie in experiences and policy issues raised in the U.S., Canada, and other traditionally decentralized developed countries and can be traced to the seminal works of Tiebout (1956), Musgrave (1959), Oates (1972) and Olson (1969) among others. These classical foundations assume government is benevolent at all levels and reserve the redistribution and macro stabilization functions to the central or federal government. However, they see a fundamental role for both subnational and central governments in the more efficient allocation of resources. Controlling for the presence of large externalities and economies of scale in production, subnational governments are seen to have an advantage in the delivery of public services because of informational advantages about the preferences and needs of citizens. The link between decentralization and the more efficient delivery of (some) public services is formalized in Oates's decentralization theorem. Here, the efficiency is allocation efficiency or better being able to match the preferences of taxpayers. This allows achieving a higher welfare level with the available budget funds. Nothing is said about production efficiency, which can go either way with decentralized delivery, even when economies of scale are absent[25]. Some authors have questioned the information advantage of subnational governments vis-à-vis the central governments [Besley and Coate (2003)]; however, decentralized systems may still be more efficient in delivering certain public services because central authorities have lower accountability and may lack interest in diversifying the provision of public services [Seabright (1996)].

(25) Actually, Oates (2005) notes that production inefficiencies may appear in decentralized settings because policy becomes more complex.

In more recent years, the theoretical foundations above have been revised in what is known as "second-generation" fiscal federalism, a literature that assumes political and fiscal institutions to work under imperfect information and where public officials are likely to act selfishly, in contrast to the benevolent government assumed in the classical fiscal federalism literature. The assumption that public officials may act in their own interest is actually the cornerstone of the public choice theory as developed by James Buchanan and coauthors, which saw fiscal decentralization and intergovernmental competition as putting limits to a public sector Leviathan. In its modern reincarnation, the best known example of the second generation literature is what has become known as "market-preserving federalism" by Weingast (1995) and others. Here fiscal decentralization is seen as setting incentives for government officials not to deviate from "good behavior" supporting private markets and as a mechanism controlling an otherwise ever expanding public sector. Incentives and information determine how the institutions and agents perform and decentralization offers tradeoffs with advantages and disadvantages. For example, central government transfers are not just a matter of closing vertical and horizontal fiscal imbalances or internalizing externalities but may also have incentive effects generating rent seeking or fiscal indiscipline by subnational governments. Therefore, the second generation theory may lead to different predictions in terms of the impact of fiscal decentralization.

The actual impact of fiscal decentralization on economic and political outcomes in both developed and developing countries has generated a very large literature. Reaching definite conclusions on the specific impacts has proven a difficult task, handicapped by data issues regarding standardization and the multifaceted dimensions of decentralized powers. Another serious difficulty has been the presence of endogeneity and the lack of clear identification strategies. Nevertheless, the balance of the empirical evidence is on the side of the beneficiary effects of fiscal decentralization on the delivery of basic services such as education and health services [Channa and Faguet (2016)], on macroeconomic stability [Lago *et al*. (2018)], and on many other economic and political outcomes ranging from corruption levels to economic growth or income distribution [Martinez-Vazquez *et al*. (2017)].

2.5. Increasing inequality and the taxation of capital income and wealth

The classical public finance topics of capital income and wealth have made a forceful comeback in the aftermath of the global financial crisis for the role they can play in curbing rising income and wealth inequality, as documented in Picketty and Zucman (2014), among many other sources. Capital income and wealth concentration at the top of the distribution have given new impetus to research on optimal capital income taxation and the role to be played by wealth and inheritance taxes.

Whether capital income should be taxed has been the subject of a long journey in the theory of optimal income taxation with earlier answers (quite surprisingly) being 'never' to more recent ones being 'yes'. Actual tax policy on capital income taxation has been somewhat divorced from the historical flow of theoretical developments, but a number of realities, such as capital mobility and global competition, has been pushing most countries to lighten capital income tax burdens vis-à-vis labor income.

The intuition behind the "never" result is that capital income taxation distorts savings –penalizes future consumption– so not taxing capital income may be optimal. This result was formalized in the well-known Atkinson and Stiglitz (1976) theorem under the assumption that all consumers have preferences weakly separable between consumption and labor. The optimality of not taxing capital income was further reinforced by the also well-known result by Chamley (1986) and Judd (1985), who, using a dynamic Ramsey model, assumed economic agents have infinite lives.

Posterior work has questioned the assumptions behind those previous results and advanced a variety of practical implementation, equity and efficiency issues all leading to the conclusion of the potential optimality of positive capital income taxation. For example, work on "new dynamic public finance" reconsiders the optimal taxation of capital income in dynamic economies with uncertainty about future income and less a priori constraints on government policy [Golosov, Kocherlakota, and Tsyvinski (2003); Golosov, Tsyvinski, and Werning (2006)]. The main result in this literature is that optimal taxation requires using different taxes, including positive capital taxation, at rates that vary depending on the individual's income history. In addition, there is a powerful practical consideration for taxing capital income. This is that tax authorities cannot easily differentiate between capital income and labor income of entrepreneurs. If capital income is exempted, many entrepreneurs would be able to shift their labor income into the lower taxed or exempt capital income [Gordon and Slemrod (2000); Christiansen and Tuomala (2008); Pirttilä and Selin (2011)][26].

The applicability of some of the results in "new dynamic public finance" remains in doubt given the informational requirements on individuals' history and characteristics. Meanwhile, in the international experience capital income continues to be taxed but generally speaking at lower rates than other income and the trends continue to be in a downward direction. Beyond the dual income tax –with lower rates for capital income –applied in Nordic countries–, some countries simply exempt dividends and many others tax capital gains at lower rates. And nowhere is the downward pressure stronger than in the rates of the corporate income tax, where statutory rates have been continuously cut. The most recent cut in rates in the U.S. under the Trump administration is likely to lead to another round of cuts internationally. This particular trend is theoretically supported by the proposition going back to Harberger that with high capital mobility and open economies, the actual incidence of corporate profit tax is shifted onto workers and other immobile domestic factors of production [Razin and Sadka (1991)]. Therefore, the taxation of capital income if anything is likely to become lighter, although corporate profits taxes are unlikely to disappear altogether[27].

If the prospects of using capital income taxation to reduce inequality in the distribution of income and wealth do not look promising, is there room to compensate those trends with taxes on wealth? Wealth taxes take different forms, with the most

(26) This basic difficulty of distinguishing between labor and capita income has been among the biggest challenge with the implementation of dual-income taxes in Nordic countries. See for example Sørensen, (2006).

(27) As Sørensen (2006) points out there are powerful reasons for the permanency of some type of corporate profit tax. These include political constraints from citizens' perceptions of justice, administrative issues with the corporation tax being a backstop to the more effective and convenient enforcement personal income tax, the existence of location-specific rent that can be taxed away, or imperfect capital mobility and frictions. Furthermore, countries that use a global income definition of the corporate tax allow a credit for taxes paid abroad; therefore, host countries not taxing those profits would mean just a transfer of those tax revenues to the treasury of the corporation's home country.

common and relevant being an annual (net)[28] wealth or capital tax and a tax on the transfer of wealth, as in the inheritance or estate taxes. However, both types of taxes are quite complex to implement well and traditionally have raised little tax revenue. In addition, they have been atop the list of most unpopular taxes. Not willing to take the political heat, governments in many countries have either abandoned or downplayed these taxes in recent years.

However, beyond the hard political economy realities associated with wealth taxes, there continues to be considerable research interest in their efficiency and effectiveness as redistribution tools. Several recent papers have researched the tax elasticity of reported wealth, looking for an answer to the question of how efficient wealth taxation may be as a redistribution tool [Brülhart *et al*. (2016); Seim (2017)]. Regarding effectiveness, Cowell *et al*. (2017) argue that despite its minimal importance in terms of revenues, inheritance taxes can have a significant effect in the long-run distribution of wealth, reducing equilibrium inequality –the so called "pre-distribution effect"–.

3. Conclusions and challenges for future research in public economics

The field of public economics has evolved considerably over the last quarter century. It has become no doubt more empirical. However, unresolved theoretical issues –such as the proper taxation of capital income– have continued to attract considerable research. The strong interest in the behavioral effects and evaluation of taxes and spending programs has been followed by growing research in many areas such as income redistribution, fiscal federalism, corruption, or tax evasion. Research and researchers have also become much more international, growing well beyond the earlier importance of the Harvard-MIT-Berkeley corridor. New methodological approaches have settled as main stream, including behavioral economics, randomized control trials (RCTs), and vigorous research on the "sufficient statistics". Many issues in the application of these methodologies are far from settled, as in the case of randomization being atop the hierarchy of evidence.

The review of the public economics literature in this paper clearly had to be selective. Many other areas of research have been developing and to which we could not do justice. For example, there has been considerable research dedicated to the redistribution impact of tax and expenditure policies based on tax and expenditure incidence analysis using a variety of tools ranging from cross country panel data to micro-simulation analysis and CGE modeling. Some of the literature is reviewed in Martinez-Vazquez *et al*. (2012) and Lustig (2018). Another area where there continues to be considerable research on tax evasion and enforcement –explaining why people pay taxes [Alm *et al*. (2010)]. Beyond the design of optimal tax systems– combining tax administration and policy issues [Keen and Slemrod (2017)], there has been increasing interest in applying randomized field controlled experiments [Hallsworth. (2014)] and on understanding the role of behavioral factors under the umbrella of "tax morale" [Luttmer and Singhal (2014)]. These are just examples of the general areas of ongoing research identified by Raj Chetty and Amy Finkelstein

(28) In most cases, liabilities from loans are deducted from the gross value of the assets.

in the most recent NBER Reporter (reviewed above), such as "behavioral public finance" and "lab and field experiments".

What will the next 30 years of research in public economics bring? It is hard to answer, of course. But if we take a clue from the drivers of research innovation over the last 30 years, discussed in the introduction, economic policy challenges now emerging are likely to be among the main drivers of that future research in public economics. There are some clear economic challenges ahead facing nations across the world. Increasing income inequality and wealth polarization will demand increased further research in how tax systems and welfare policies may be used to alleviate these problems. Population dynamics, including ageing and migration, are likely to demand creative changes in government policies, especially in the case of social security. Lagging economic development in African and other countries around the world are likely to continue to attract research on the effectiveness of public policies and program evaluation, likely based on a more extensive use of randomized field controlled experiments. Global warming and environmental damage will require further research on international coordination for how to preserve the global commons of clean air and water and reversing the growth of carbon emissions.

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RESUMEN

El campo de la economía pública ha experimentado transformaciones muy notables durante el último cuarto de siglo. Los principales determinantes del cambio han sido los nuevos retos de las políticas públicas, tales como el aumento de la desigualdad de la renta, la libertad de movimientos internacionales de capital y la globalización, el envejecimiento de la población, el calentamiento global y la respuesta a la Gran Recesión. El énfasis creciente en el contraste empírico ha sido impulsado por la disponibilidad de mejores registros de microdatos administrativos, una mejor identificación gracias a técnicas econométricas más creíbles y el desarrollo de nuevas metodologías de investigación, incluyendo los experimentos de laboratorio y los 'randomized field controlled trials'. Este artículo ofrece primero un panorama de las tendencias generales de la investigación en economía pública a partir de tres fuentes singulares y relevantes para apuntar y destacar después varios de los nuevos desarrollos tomando como referencia una breve lista de temas de investigación.

Palabras clave: finanzas públicas, fiscalidad, bienes públicos, finanzas intergubernamentales, políticas fiscales.

Clasificación JEL: H0, H2, H3, H4, H7.