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BUDGETING FOR GENDER EQUALITY IN RESEARCH PERFORMING ORGANISATIONS

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Abstract: Gender equality in research and innovation is one of the key priorities of the European Research Area and is part of the European Commission Gender Equality Strategy for 2020-2025 (European Commission, 2020). However, research performing organisations (RPOs) in Europe still show persistent gender inequalities with vertical (the glass ceiling phenomenon, with few women being able to reach the top of the ladder) and horizontal segregation (both with reference to the disciplines of research and teaching and in the choice of education fields) (European Commission, 2019a). This paper analyses inequalities in European RPOs and proposes strategies to reduce them. Can gender budgeting (GB) be a tool, along with other specific actions, in achieving gender equality? What key features should GB include to do so? To answer these questions, 25 GB examples from European RPOs were analysed, paying attention to the methodologies and the indicators that were used, and to their interaction with gender equality plans. Viable suggestions are put forward to improve the impact of GB on gender equality outcomes in RPOs.

Keywords: gender equality, gender budgeting, research performing organizations, academia, structural change.

J.E.L. Classification: B54; J16; I23; J71; H61.

1. Introduction

Although considerable progress has been made towards equality between women and men in the labour market in the past 50 years, the process is far from complete. Severe gender imbalances persist in the earnings and careers between women and men in European countries, as the European Institute for Gender Equality (EIGE) gender equality index clearly indicates (EIGE, 2020). Many research and higher education institutions still show gender inequalities across several dimensions. They are characterised by a high degree

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of both vertical (the glass ceiling phenomenon limits the capacity of women to reach the top of the job ladder) and horizontal segregation (inequalities in gender distribution both with reference to the disciplines of research and teaching and in the choice of education fields) (European Commission, 2019a). This paper recognises these inequalities at European level, then focuses on the role played by gender budgeting (GB) in research performing organisations (RPOs)¹ in the achievement of gender equality.

We begin by summarising GB aims and approaches (Section 2). The focus in Section 3, rather than being on a single institution, is on the gender equality status of RPOs in European countries, to locate where concrete actions are needed. Section 4 comprises a multiple case study of GB in European RPOs. The research question is designed to address the extent to which their practices are based upon different methodologies and whether they are embedded within a systematic approach that reveals an organisational commitment to the pursuit of gender equality. Section 5 concludes by providing suggestions for strategies to implement GB in RPOs to increase gender equality, together with proposals for further research.

2. *Gender budgeting*

Gender budgeting questions the assumption that public policies are gender neutral. Economic theory and applied research do provide evidence of the different gender impacts of policies. Consider, for example, the well documented different labour supply elasticities of substitution with respect to wage changes by gender (Blau and Kahn, 2007; Borjas, 2016; Cahuc *et al.*, 2014) or the unequal distribution of working time between men and women (Anxo *et al.*, 2011; Picchio, 2003; Rubiano Matulevich and Viollaz, 2019). It is difficult to argue that a policy that does not consider these differences will be gender neutral in its application. On the contrary, if one neglects the differential impact that the same expenditure and policy can have on men and women, gender inequalities and losses in efficiency and effectiveness may persist or increase (International Monetary Fund, 2017; United Nations Development Programme, 1995); GB requires that policies are analysed with an awareness of existing gender differences and inequalities (Pulejo, 2012).

An assessment of the gender impact of budgetary policies should therefore be carried out. It should integrate the gender perspective at each stage

¹ Including higher education institutions and non-profit organisations that perform research in one or in a multitude of domains.

of the budget cycle, in the forecasting phase (GB), in the resource allocation process, and in the auditing phase (gender auditing). The aim is not to create separate budgets for women and men, but to review them so as to make explicit gender equality issues. The crucial role that GB can play in attaining equality was discussed by Addabbo *et al.* (2015b), who made clear the possible limitations to the achievement of this goal at different government levels.

Although one can state in general that GB aims to integrate gender perspectives in the budgeting process, there are a number of different approaches. These can be related to the prevalent budgeting system and to the RPOs' objectives (Council of Europe, 2005; Downes and Nicol, 2020; Downes *et al.*, 2016; EIGE, 2019; Klatzer *et al.*, 2018; Quinn, 2016). Klatzer *et al.* (2018) outlined these approaches: (a) the most comprehensive, aiming at integrating gender analysis through all stages of the budgeting cycle (planning, implementation, auditing, and evaluation); (b) performance-based budgeting, highlighting gender-related objectives through programme budgeting; (c) integration of the gender perspective into medium-term budget planning; and (d) well-being GB.

The latter is a form of public accounting that refers directly to the well-being of individuals, as defined by a list of capabilities and functionings (doings and beings) (Nussbaum and Sen, 1993; Sen, 1985; 1993). The approach is based on an extended macroeconomic framework that acknowledges the different role of men and women in the social reproduction process, addresses gender inequalities in the fulfilment of capabilities (Addabbo *et al.*, 2010), and evaluates the contribution of public institutions in the construction of well-being. At the same time, it shows the gender inequalities that are observable in its development (Addabbo, 2016; Gunluk-Senesen *et al.*, 2015; Gunluk-Senesen and Yucel, 2018). Increased attention has also been paid to the link between GB and participatory budgeting. The implementation of participatory methods is possible in well-being GB, as has been shown in Senegal (Addabbo *et al.*, 2019) and within higher education institutions (Addabbo *et al.*, 2015a). Gender budgeting also increases transparency in the distribution of resources; however, according to EIGE (2016a), it remains an underused tool in RPOs, notwithstanding its importance in gender mainstreaming. This will be discussed in the following section.

3. *Gender inequality in academia*

Gender equality and gender mainstreaming in research and innovation is one of the priorities of the European Research Area (ERA; European Commission, 2012). The European Commission invites RPOs to design gender

equality plans that aim to identify gender bias within the institution by conducting impact assessments/audits of procedures and practices, and to implement innovative strategies to correct any bias and to set targets and monitor progress via indicators (European Commission, 2012).

Gender equality in research and innovation is also part of the European Commission Gender Equality Strategy for 2020-2025. Further advances in gender equality in RPOs will be driven by the requirement for Gender Equality Plans (GEPs), which will be needed to access EU funding:

In the field of research and innovation, the Commission will introduce new measures to strengthen gender equality in Horizon Europe, such as the possibility to require a gender equality plan from applicants and an initiative to increase the number of women-led technology start-ups. Funding for gender and intersectional research will also be made available (European Commission, 2020, 17).

In our opinion, to ensure their effectiveness and to enhance their transformative power, GEPs should be evaluated in terms of GB. The European Commission's last report on the progress made in ERA implementation in 2016-2018 stated that:

The majority of countries have made progress in setting up more comprehensive strategies for gender equality in R&I, although progress is slow and uneven across the ERA. Efforts to increase the enrolment and retention of women in science, implement work-life balance policies, reduce the gender pay gap and remove obstacles to women's career progression as well as better integrate the gender dimension in R&I content are still needed in order to achieve gender equality and gender mainstreaming in the ERA (European Commission, 2019b, 10).

The European Commission's objectives are framed in a context characterised by a high degree of gender inequality in RPOs. In fact, according to the latest She Figures report (European Commission, 2019a), women are more likely than men to graduate at bachelor's level, but are less likely to continue their studies to doctoral level (European Commission, 2019a). Moreover, in 2016, inequality in the gender distribution of graduates and doctoral graduates by fields of education still persists: in EU28 countries women comprised 68% of doctoral graduates in the field of Education and 60% in the field of Health and welfare, but were severely under-represented in the fields of information and communication technologies (21%), and engineering, manufacturing, and construction (29%) (European Commission, 2019a).

Analysing the distribution of researchers according to the grades of a typical academic career, the She Figures report (European Commission, 2019a) showed that the presence of women decreases as individuals move up the academic ladder (from grade C to grade A). On average, in European countries in 2016, women represented 46% of grade C, 40% of grade B, and 24% of grade A, and the differential was even wider in science,

technology, engineering, and mathematics (STEM), where they represented only 15% of grade A positions. Moreover, the share of women researchers with precarious working contracts was 8%, higher than that for male researchers (5%) in two thirds of the EU countries analysed in the She Figures report of 2018. In addition to vertical segregation, RPOs are characterised by horizontal segregation with inequalities in the gender distribution by field of research (Picardi, 2020; Salinas and Bagni, 2017; Silander *et al.*, 2013).

Evidence has been gathered on the effectiveness of voluntary positive action in addressing inequalities between men and women's careers in higher education institutions, for instance through systems of gender equality certification such as the Athena Scientific Women's Academic Network (SWAN) (Graves *et al.*, 2019; Xiao *et al.*, 2020). Athena SWAN has supported and recognised higher education institutions in advancing the careers of women through charter commitments, awards, training, and advocacy since 2005. Xiao *et al.* (2020) used quantitative data on the gender diversity of managerial leaders and non-managerial professors from 2012-2013 to 2016-2017, and concluded that Athena SWAN members were characterized by a greater and faster growth in female representations in managerial positions.

From 2011 to 2020, the United Kingdom's National Institute for Health Research (NIHR) linked its research funding to the implementation by universities of GEPs through the Athena SWAN charter. In 2011, the director of the NIHR announced that in the 2016 round of the competition, the NIHR would not be expecting to shortlist any research centre where the academic partners had not won the Athena SWAN silver award at least. According to Ovseiko *et al.* (2020), linking funding to the Athena SWAN silver award seems to have increased the number of female theme leads but not the number of female directors in the institutions that were investigated. In general, linking funding to RPO policies to achieve gender equality can create an external incentive to implement actions, thereby leading to higher gender equality (Addabbo *et al.*, 2015a; Erbe, 2015; Ovseiko *et al.*, 2020). However, the effectiveness of these measures depends on whether they are binding, on the existence of a monitoring system, and on the set of indicators chosen to evaluate the actions (Erbe, 2015; Salinas and Bagni, 2017; Winchester and Browning, 2015).

According to Steinþórsdóttir *et al.* (2017), new public management that focused on academic excellence and that directed resources towards more male-dominated areas had contributed to an increase in gender inequality within academic institutions. In the following section we will analyse a set of GB experiences to examine the role that GB can play in achieving gender equality in RPOs and its interaction with GEPs.

4. *Budgeting for equality in academia: Examples*

In this section, the results of our analysis of 25 examples of GB in European Union (EU) RPOs are presented. In Section 4.1 we outline the methodology that was used to select the cases. Section 4.2 discusses the normative setting in terms of the presence of legal requirements for GB or of national standards for implementing GB in RPOs. Each case refers to the GB implementation by different RPOs after their assessment of the internal degree of gender equality. This involves identifying the indicators used to perform the context analysis and whether they allow for benchmarking in relation to other RPOs or to the national average (Section 4.3). The methodologies used by each RPO to implement GB, whether they refer to an existing national standard, and whether their GB is explicitly linked to GEPs, are analysed in Section 4.4.

4.1. *Methodology*

In accordance with the scientific and empirical framework outlined above and with the objective of the research, a multiple case study approach was chosen (Ryan *et al.*, 2002; Yin, 2003). We identified a number of universities that had published GB reports. The case studies were selected with reference to documentary analysis (Corbetta, 2003). They show several of the multiple approaches that are used in academic institutions in different countries (Table 1): 11 in Italy, four in Austria and Spain, two in France, and one in Germany, Poland, Albania, and Iceland, respectively.

The first item analysed in each RPO's GB report was the self-assessment of the RPOs' gender equality (Table 2). Attention was paid to the type of context analysis performed (qualitative and/or quantitative) and to the indicators used by each RPO to measure the gender equality in the institution. The different types of indicators are defined in the Appendix. The 25 examples were analysed in terms of the methodologies they followed to implement GB and the degree of integration with GEPs.

4.2. *The normative setting*

In recent decades, universities have been hit by complex reforms that have affected organisational models as well as accounting practices and, more generally, information systems. The growing attention to gender issues has led to the development of both experimental and consolidated GB practices.

TAB. 1. *Selected Experiences of Gender Budgeting in European Universities*

RPO	Countries	Financial Year(s)	References
University of Tirana	Albania	2019	Albanian Government (2016)
Austrian Student Body (Österreichische Hochschülerinnenschaft)	Austria	2011	Austrian Student Body (2013)
Medical University Graz	Austria	2010	GENDER UNIT, Medizinische Uni- versität Graz (2011)
University of Graz, Austria	Austria	2013	Eckstein (2016)
Vienna University of Economics	Austria	2007	Klatzer <i>et al.</i> (2008)
Aix-Marseille Université	France	2018	Aix-Marseille Université (2018)
Sciences Po	France	2013	Albenga <i>et al.</i> (2015)
University of Augsburg	Germany	2007	Rothe (2007)
University of Iceland	Iceland	2015	Steinþórsdóttir <i>et al.</i> (2016)
Politecnico di Milano	Italy	2018	Politecnico di Milano (2019)
Polytechnic University of Marche	Italy	2018	Università Politecnica delle Marche (2018)
University of Bari	Italy	2017	Università degli Studi di Bari Aldo Moro (2018)
University of Bologna	Italy	2018	Università degli Studi di Bologna, Alma Mater (2019)
University of Ferrara	Italy	2017	Università degli Studi di Ferrara (2018)
University of Foggia	Italy	2018	Università degli Studi di Foggia (2016)
University of Modena and Reggio Emilia	Italy	2012	Addabbo <i>et al.</i> (2015a)
University of Padua	Italy	2016	Università degli Studi di Padova (2016)
University of Pavia	Italy	2009	Università degli Studi di Pavia (2010)
University of Rome – La Sapienza	Italy	2018	Università di Roma La Sapienza (2018)
Ca' Foscari University of Venice	Italy	2018	Università Ca' Foscari Venezia (2019)
University of Gdansk	Poland	2007	Rothe (2007)
Universidad de Granada	Spain	2019	Universidad de Granada (2018)
Universidad del País Vasco	Spain	2014	Universidad del País Vasco (2014)
University Pablo de Olavide	Spain	2012	Addabbo <i>et al.</i> (2015a)
University Pablo de Olavide	Spain	2018	Rodríguez-Modroño <i>et al.</i> (2020)

In Austria, Article 7(2) of the Constitution includes a commitment to gender equality to promote de facto equality between women and men. Eliminating existing inequalities and GB is firmly integrated into the legal framework (EIGE, 2019). The Ministry for Science pushed higher education institutions to implement the first steps towards GB as part of their performance agreement for 2010-2012.

Since the end of 1990s, plans and programmes seeking to advance gender equality in Spain have been developed at central, regional and – to some extent – local level. Gender budgeting practices are diffuse at the regional and local government levels (EIGE, 2019). As a result of the 2008 financial crisis, new regulations that aim to improve gender equality have come into force. These have expanded the scope of GEPs with regard to their content

(e.g., by reinforcing equal pay and enabling parents to share childcare responsibilities) and their control mechanisms. They have been shown to be a key tool in promoting effective equality in academic and research institutions, and some improvements have been made (e.g., in increasing the number of women in positions of responsibility and in the integration of gender perspectives and gender content in research).

The 2016-2020 National Strategy and Action Plan on Gender Equality was approved in Albania in 2016. It had four strategic aims: economic empowerment of women and men, guaranteeing the equal participation of women in politics and public decision making, a reduction in gender-based violence and domestic violence, a strengthening of the coordination and monitoring role of the national gender equality mechanism, and the raising of gender awareness in society in general. However, no specific objectives and measures on education were included.

The promotion of gender equality (with regard to access to decision making) was made compulsory for German universities after the introduction of the Framework Act for Higher Education of 2007. Compliance with this legal provision is listed as one of the criteria to access public funding. Specific and detailed requirements have been established at regional level, while the Federal Equality Law includes the obligation to develop GEPs (EIGE, 2016a).

In France, a legal framework for mainstreaming gender equality in research and higher education institutions can be traced back to the 2014 Act on Effective Equality between Men and Women and to the 2013 Law on Higher Education and Research (EIGE, 2016a).

In Italy, in 2010 the Committee of Guarantee for equal opportunities, the enhancement of the well-being of those who work and against discrimination, replacing the previous committees for equal opportunities and joint committees on the phenomenon of bullying set up, has been introduced and one of its functions is to propose a plan of positive actions to promote equal treatment at work and the culture of equal opportunities within universities. GB for public universities was introduced by the Law 150 of 2009 as a requirement to be included in the annual report on performances that public administration should produce each year. Recently, at national level the gender budgeting committee of the Conference of Italian Universities Rectors (CRUI, 2019) and the National Conference of Italian Universities Equal Opportunities Bodies (Addabbo *et al.*, 2018) have promoted and supported gender budgeting implementation through the provision of guidelines and training activities while at State level the gender budget report is regularly issued (Guerra and Romano, 2020) including also a focus on tertiary education in a gender perspective.

4.3. *Gender budgeting and RPOs' gender equality assessments*

The results of the analysis showed that all the GB reports had a core section dedicated to a self-assessment of gender equality. A set of available indicators for the analysis of gender equality can be found in the Appendix. They include indicators that show the ratio of women or men in a given position as employees, level of degree, and pay differentials which can be used to compare women's earnings to men's according to academic or administrative positions (Borjas, 2016). Using multivariate econometric analysis, the percentage of the earnings gap attributable to discrimination can be calculated (Borjas, 2016; Oaxaca, 1973). 64% of the RPOs analysed used both qualitative and quantitative methods. Most, however, employed a limited set of indicators (Table 2).

The most common indicator amongst the ones that are used in the literature for analysing the gender equality context was the single representation index (SRI). This was used in 11 cases (44%). It was followed by the proportion of women and men in the institution, from student level to academic staff that shows a scissor pattern (Figure 1). The Glass Ceiling Index (GCI), which compares the proportion of women in academia (grades A, B, and C) with the proportion of women in top academic positions (grade A positions, which are equivalent to full professorships in most countries) in a given year was computed to be 28% (Figure 1).

Best practice, in terms of the completeness of indicators, can be detected in the University of Graz (Austria), the University of Bologna (Italy), and the University of Pablo de Olavide (Spain) – 2018 edition. These computed at the RPO level the GCI, the gender pay gap (GPG), and the comparative results and impact indicators (CRII) – in addition to Single Representation Index (SRI) and (or) proportions of women and men in a typical career from student level to academic staff by area (PWM/A) indicators. The use of a broader set of indicators can be correlated to an improved analytical capacity. It gives the institution a better knowledge base on which to assess the degree of gender inequality.

Visual representation of performance and accounting data—that is, the ability to provide easily comprehensible information through graphs—is a key feature in helping to guide decision makers (Busco and Quattrone, 2015). Aix-Marseille University (France), the Polytechnic of Marche (Italy), the Ca' Foscari University of Venice (Italy), and the University of Graz (Austria) provided examples of best practice in this respect.

28% of the RPOs compared their GB reports with national average data (Table 2): the University of Tirana (Albania), and the Universities of Foggia, Marche, Modena and Reggio Emilia, Rome, and Venice (Italy). The Pablo

TAB. 2. *Context Analysis Indicators*

RPO	Country	Type of Indicators	Indicators	Comparative analysis
University of Tirana	AL	Qualitative, Quantitative	PWM, PWMA	YES
Vienna University of Economics	AT	Qualitative		NO
Austrian Student Body	AT	Qualitative, Quantitative	GPG, SRI, CRII	NO
Medical University Graz	AT	Qualitative	GPG, SRI	NO
University of Graz, Austria	AT	Quantitative	PWM, PWMA, GCI, GPG, SRI	NO
Aix-Marseille Université	FR	Quantitative	CRII	NO
Sciences Po	FR	Qualitative, Quantitative	GPG, SRI, CRII	NO
University of Augsburg	DE	Qualitative	SRI	NO
University of Modena and RE	IT	Qualitative, Quantitative	SRI	YES
University of Ferrara	IT	Qualitative, Quantitative	PWM, PWMA, GCI	NO
University of Pavia	IT	Qualitative, Quantitative	PWM	NO
Ca' Foscari University of Venice	IT	Qualitative, Quantitative	PWM, PWMA	YES
University of Foggia	IT	Qualitative, Quantitative	SRI	YES
Polytechnic University of Marche	IT	Quantitative	PWMA, GCI, SRI	YES
University of Bari	IT	Qualitative, Quantitative	PWM, SRI	NO
University of Rome - La Sapienza	IT	Qualitative, Quantitative	SRI	YES
University of Bologna	IT	Qualitative, Quantitative	PWM, PWMA, GCI, GPG	NO
University of Padua	IT	Qualitative, Quantitative	PWM, PWMA, GCI	NO
Politecnico di Milano	IT	Qualitative, Quantitative	PWM, PWMA, GCI	NO
University of Gdansk	PL	Qualitative		NO
University Pablo de Olavide	ES	Qualitative, Quantitative	SRI	YES
University Pablo de Olavide	ES	Qualitative, Quantitative	DI, GCI, GPG, SRI, CRII	NO
Universidad de Granada	ES	Quantitative	DI, SRI, CRII	NO
Universidad del País Vasco	ES	Qualitative, Quantitative	DI, GPG, SRI, CRII	NO

Source: Authors' Elaborations.

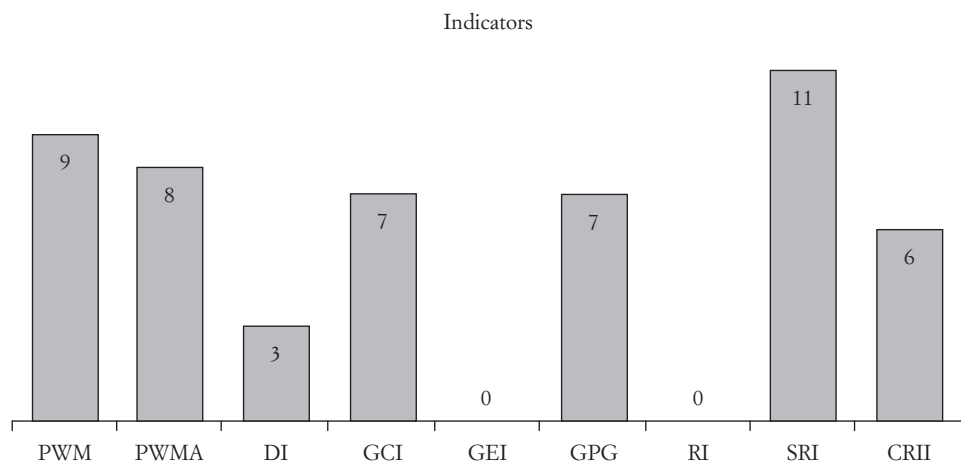


FIG. 1. Indicators used in context analyses.

Source: Authors' elaborations on the 25 cases.

de Olavide University (Spain) compared itself with the University of Modena and Reggio Emilia (Italy). Comparing data against national averages represented a lean solution rather than comparing results with multiple similar institutions. This avoided the inclusion of a large amount of data relating to different experiences that might, in any case, have lacked an overview of the system in which the organisations were operating. An alternative benchmark might be universities of approximately the same size or in similar areas. The latter could be useful to analyse the interaction with other institutions' experiences in countries such Italy or Spain, where GB experiences are well dispersed at regional or local levels.

4.4. *Gender budgeting: Methodologies and links with GEPs*

In this section the RPOs' methodologies and practices and their interaction with GEPs are analysed (Table 3). With reference to Klatzer *et al.* (2018), we were able to detect GB implementation that aimed to integrate gender analysis through all stages of the budgeting cycle (from planning, to implementation, auditing, and evaluation), mainstreaming gender perspectives into the whole process of public finance management (PFM). Most of the GB practices used a PFM approach (Figure 2). We did not observe any full integration of the gender perspective into medium-term budget planning.

Performance-based budgeting or results-based budgeting linking policy targets and objectives more closely with budgeting has been used in one GB analysis. Well-being GB was applied in three cases. We also classified the 25 examples according to the level of participation at different phases of the budgeting process, from advice/consultation to budget decisions, and whether they used an account-based approach to provide a reclassification of public expenditures so as to assess congruence between gender-relevant objectives and budget allocations (Budlender and Hewitt, 2003; Budlender *et al.*, 2002; Sharp and Broomhill, 1990). The account-based approach was used in six cases.

The classification provided in Table 3 shows the methodology implicit in each case. Most of the RPOs did not refer to a specific approach. The exceptions were the GB carried out by the Austrian Student Body (Österreichische Hochschülerinnenschaft), the University of Modena and Reggio Emilia, and the University of Pablo de Olavide (Addabbo *et al.*, 2015a). The latter used a well-being GB approach to assess the role of programmes on students' well-being, with particular attention paid to certain dimensions that the students had identified as priority actions through a participatory budgeting process. In the case of the Austrian Student Body (Österreichis-

TAB. 3. *Methodology and interaction with GEPs*

RPO(s)	Country	Financial Year	Time Span	In GEPs	Methodology	ST	AUD	BUDG
University of Tirana	AL	2020	4	NO		NO	NO	NO
Vienna University of Economics	AT	2007	1	NO		NO	NO	NO
Austrian Student Body	AT	2011	1	NO	PFM, PB	YES	NO	NO
Medical University Graz	AT	2010	2	NO	PFM	NO	NO	NO
University of Graz, Austria	AT	2013	4	YES	AB, PFM	NO	YES	YES
Aix-Marseille Université	FR	2018	1	NO	PFM	NO	NO	NO
Sciences Po	FR	2013	1	YES	PFM	NO	NO	NO
University of Augsburg	DE	2007	1	NO		NO	NO	NO
University of Modena and RE	IT	2012	1	NO	WBGB, PB	NO	YES	NO
University of Ferrara	IT	2017	3	YES	AB	NO	YES	NO
University of Pavia	IT	2009	1	NO	AB	NO	NO	NO
Ca' Foscari University of Venice	IT	2018	1	YES	AB, PFM	NO	YES	NO
University of Foggia	IT	2018	1	YES	PFM	NO	NO	NO
Polytechnic University of Marche	IT	2018	1	YES	PFM	NO	NO	NO
University of Bari	IT	2017	7	YES	PFM	NO	YES	NO
University of Rome – La Sapienza	IT	2018	1	NO	PFM	NO	NO	NO
University of Bologna	IT	2018	1	YES	AB	NO	YES	NO
University of Padua	IT	2016	1	YES		NO	NO	NO
Politecnico di Milano	IT	2018	3	YES	AB	NO	YES	NO
University of Gdansk	PL	2007	1	NO		NO	NO	NO
University Pablo de Olavide	ES	2012	1	NO	WBGB, PB	NO	YES	NO
University Pablo de Olavide	ES	2018	1	NO		NO	YES	NO
Universidad de Granada	ES	2019	1	NO	PFM, PBB	YES	NO	YES
Universidad del País Vasco	ES	2014	2	YES	WBGB	YES	YES	NO

Source: Authors' elaborations.

che Hochschülerinnenschaft), the authors adopted the standard qualitative–quantitative BASS method (Bauer and Baumann, 1996), which integrates administrative data, questionnaires, and semi-structured interviews.

Another key topic explored in the analysis was the integration of gender budgets with GEPs. According to the European Commission, these are a set of actions aimed at carrying out impact assessment of procedures and practices to identify gender bias, to identify and implement innovative strategies to correct them, and to set targets and indicators to monitor progress towards gender equality (EIGE, 2016b). Therefore, as budgets reflect an institution's real policy commitments, their analysis can also improve the sustainability of GEPs by detecting the most effective and efficient allocation of resources.

It emerged that around 45% of the budgeting examples were integrated into official GEPs (Table 3). This was more often so in the Italian universities, which usually made reference to GEPs, or positive action plans. This may be explained by the fact that positive action plans are compulsory by law for every Italian public organisation. However, it is important to mention that most of the Italian GB that referred to GEP objectives did not show an effective integration between the two. In other words, the budgets were

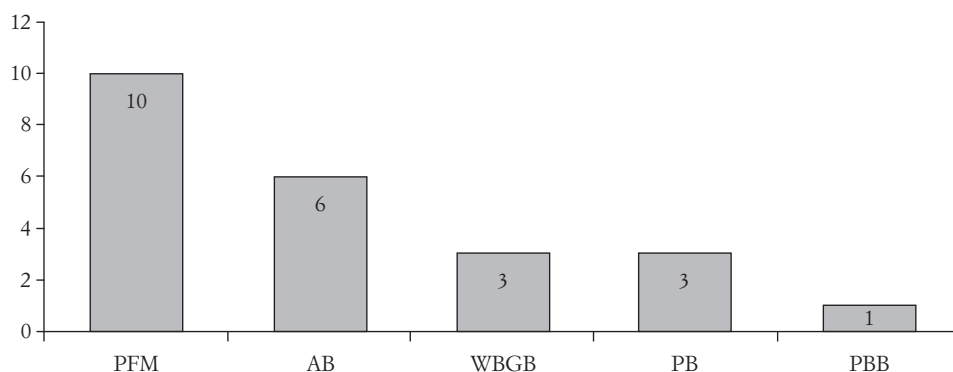


FIG. 2. Gender Budgeting Methodologies used.

Source: Authors' elaborations on the analysed cases.

not structured to measure the progress toward GEP objectives in an effective manner (Table 3).

It is therefore also worth noting that GB should also be read in relation to other reporting documents. In some cases, we noticed that GB was displayed within, for instance, social reports, sustainability reports, and integrated reports. This was the case at the universities of Bari, Pavia, Rome, and the Polytechnic of Marche (Italy), the Aix-Marseille University (France), and the University of Granada (Spain). We believe that such an integration has advantages connected to the contextualisation of gender issues in the wider organisational context. It limits the possibility that stakeholders might consider the institutions' reports and accounting practices to be too fragmented. However, the inclusion of different budgets in the same document may lead to over-lengthy and unappealing documents that bear the risk of diluting the significance of the gender dimension. A potential solution would be to create a set of separate and lean documents linked to each other; the Polytechnic of Marche provided such an example.

A single performance reporting document can incorporate appendixes focusing on specific aspects such as gender issues and the environment. This solution also avoids any potential overlap between different reporting tools (i.e., gender budget, sustainability, and social reports). The European Commission (2012) observed that:

Structural change in universities and research institutions means making them more gender-aware, thereby modernising their organisational culture. This has important implications for equal opportunities, full use of talent, appeal of scientific careers, and quality of scientific research. It implies systemic, integrated, long term approaches rather than piecemeal short-term measures.

Finally, it emerged that approximately 42% of gender budgets had a structural impact on organisations' gender equality. The main effect related to the information they provided to the RPOs' strategy makers. In particular, it seems that GB was used as a means of supporting gender-based planning. An interesting practice was observed in the University of Ferrara, where the results of GB were used to support the university's governance bodies in their decision making.

5. *Discussion and conclusions: Towards transformative gender budgeting*

In this section, we summarise the main results of the analysis and provide some suggestions for the implementation of GB in RPOs, which remains an underused strategy in reducing gender inequalities. Our survey revealed that approaches and effects varied within and across the different institutions. We therefore propose the following:

1. RPOs' gender equality self-assessment. A wide set of indicators should be considered. They should be both qualitative and quantitative, represented in a clear and comprehensible way, and made available so that the impact of policies can be tested in a dynamic setting. Comparisons with national averages and with other benchmarks (e.g., with universities of the same size or with similar research and educational objectives) would allow a better understanding of organisational performance in terms of gender equality.

2. Gender budgeting and GEPs. There is a need to integrate the two types of documents, to measure progress towards GEP objectives, and to monitor GEP structures.

3. Gender budgeting methodologies. Approaches and standards should be adopted and followed consistently, both in terms of the overall organisational budgeting process and of the local, national, and international contexts and objectives.

4. Gender budgeting inclusion in the budgeting cycle and in the RPO reporting framework. This should include GB in the general context of financial auditing and monitoring, and will yield more powerful information. The GB document should be integrated into the wider reporting framework of the institution, linking it to other documents such as the social report. This will provide more useful data for internal and external stakeholders.

5. Continuity in GB should be ensured by its integration into the budget cycle.

Evidence collected at EU level (European Commission, 2019a) and through the cases in the present study reveal the persistence of gender inequality. This reinforces the need for analysis of the determinants and policies

that can secure the objectives expressed in European strategies and shared, to different degrees, by member countries. Gender budgeting is a process that provides RPOs with the opportunity to link gender equality plans with budget cycles, fostering decision-making processes that acknowledge gender equality issues at all organisational levels. The monitoring and evaluation of GEPs and their inclusion in the GB process will ensure their efficacy. As the examples herein have shown, however, the two elements are not yet truly integrated. The integration of GB into the RPO budget cycle will allow them to be organisationally transformative. At present, there is the risk of them having no real impact on decision making.

A wider analysis of other institutions and longitudinal case studies might help to corroborate the suggestions made above, and may provide institutions that wish to implement GB within their RPOs with a better knowledge of its effectiveness in reaching gender equality.

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Appendix

Indicators used in by each RPO for the RPO's gender equality self-assessment:

- PWM: proportions of women and men in a typical career from student level to academic staff and its representation showing a scissor pattern.

- PWMA: proportions of women and men in a typical career from student level to academic staff by area and its representation showing evidence of a scissor pattern.

- DI: Dissimilarity index defined as $\frac{1}{2} \sum_i \left| \frac{w_i}{w} - \frac{m_i}{m} \right|$, where m_i and w_i are men and women in the i -th area.

- GCI: «The Glass Ceiling Index (GCI) is a relative index comparing the proportion of women in academia (grades A, B, and C) with the proportion of women in top academic positions (grade A positions; equivalent to full professors in most countries) in a given year. The GCI can range from 0

to infinity. A GCI of 1 indicates that there is no difference between women and men in terms of their chances of being promoted. A score of less than 1 means that women are more represented at the grade A level than in academia generally (grades A, B, and C) and a GCI score of more than 1 indicates the presence of a glass ceiling effect, meaning that women are less represented in grade A positions than in academia generally (grades A, B, and C). In other words, the interpretation of the GCI is that the higher the value, the stronger the glass ceiling effect and the more difficult it is for women to move into a higher position» (European Commission 2019a, 125).

- GEI: Gender Equality Index.
- GPG: Gender Pay Gap.
- RII: Results and Impact Indicators.
- SRI: Single Representation Index:

F_{ji}/T_{ji} Representation Index referred to the Institution;

F_{jw}/T_{jw} RI for the whole institution;

$F_{jcountry}/T_{jcountry}$ RI for the Country of the Institution;

$F_{jnetwork}/T_{jnetwork}$ RI for the Network of Institutions;

F_{jEU}/T_{jEU} RI EU average;

- CRII: Comparative RI indices:

$(F_{ji}/T_{ji})/(F_{jw}/T_{jw})$ [provides a measure of the representation of women in that field of study with regards to the same level of study at the university the dept. belongs to level];

$(F_{ji}/T_{ji})/(F_{jcountry}/T_{jcountry})$ [provides a measure of the representation of women in that field of study with regards to the same area and level of study at national level];

$(F_{ji}/T_{ji})/(F_{jnetwork}/T_{jnetwork})$ [provides a measure of the representation of women in that field of study with regards to the same area and level of study at network of institutions in the project level];

$(F_{ji}/T_{ji})/(F_{jEU}/T_{jEU})$ [provides a measure of the representation of women in that field of study with regards to the same area and level of study at EU level];

where: F_{ji} = female students enrolled in j and i ; w = whole institution/university the single department belong to; F_{jw} = female students enrolled in j in the whole university; i = field of study (Engineering, Economics...); j = ISCED (International Standard Classification of Education).

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