

Chapter 10

Private non-profit R&D

Institutional units within the Private non-profit sector historically have played a significant role in R&D activities in many countries. Non-profit institutions (NPIs) can be identified and classified in all sectors; they can be either market producers or non-market producers; and they include both performers and funders of R&D. This chapter outlines which NPIs should be considered for measurement in the PNP sector, and it gives guidelines on the measurement of their R&D activities, taking into account their particular characteristics as well as emerging trends with respect to new forms of R&D funding. The sector is residual, in that NPIs not classified to business enterprise, government or higher education are classified to the Private non-profit sector. The sector also includes, for completeness, households and private individuals engaged or not in market activities. The chapter provides guidance on the institutional classifications by main economic activity, the measurement of R&D expenditures and personnel in the sector and there is a discussion of survey design and data collection in the sector. There is also a brief discussion, new to the manual, of the role of philanthropists and of crowdfunding and the implications for measurement.

10.1. Introduction

10.1 Institutional units within the Private non-profit (PNP) sector historically have played a significant role in R&D activities in many countries. Their importance has been recognised in previous versions of this manual. As is described in Chapter 3, non-profit institutions (NPIs) can be identified and classified in all sectors; they can be either market producers or non-market producers; and they include both performers and funders of R&D. This chapter outlines which NPIs should be considered for measurement in the PNP sector, and it gives guidelines on the measurement of their R&D activities, taking into account their particular characteristics as well as emerging trends with respect to new forms of R&D funding.

10.2. Scope of the Private non-profit (PNP) sector

Definition of the PNP sector for R&D measurement purposes

10.2 This sector comprises:

- all non-profit institutions serving households (NPISH), as defined in the SNA 2008, except those classified as part of the Higher education sector
- for completeness of presentation, households and private individuals engaged or not engaged in market activities.

10.3 Examples of units within this sector may include independent professional and learned societies, and charitable organisations that are not controlled by units in the Government or the Business enterprise sectors. Such NPIs provide individual or collective services to households either without charge or at prices that are not economically significant. In practice, institutions in this sector may be called foundations, associations, consortia, joint ventures, charities, non-governmental organisations (NGOs), etc. Institutions, individuals and households should however be attributed to the relevant sectors according to the guidelines in this manual, regardless of their generic names.

Residual nature of the sector

10.4 The PNP sector as defined above is residual by nature. In accordance with the sector definitions given elsewhere in this manual (see Chapter 6 and Chapter 9), private non-profit units offering higher education services or

controlled by institutions of higher education should be classified as part of the Higher education sector. In the same way, private non-profit units owned or controlled by government should be classified as part of the Government sector if they are not market producers. Non-profit units controlled by or primarily serving business enterprises should be classified as part of the Business enterprise sector. Finally, the market activities of unincorporated enterprises owned by households, i.e. self-employed consultants undertaking R&D projects for another unit at an economically significant price, should be included in the Business enterprise sector. This framework is illustrated in Table 10.1.

10.5 It should be noted that in some cases the definition of control is challenging, because the power to decide on the allocation and amount of funding can be a major means of control. Therefore, it can be appropriate to use the major source of funding as an additional criterion to decide whether the institution is government controlled or not. (See Chapter 8, Box 8.1, for further guidance on the concept of control.)

Table 10.1. **Treatment of different types of non-profit institutions (NPIs)**

SNA criterion – main economic purpose	Additional SNA criterion – control / sector served	SNA treatment	Specific instances	FM treatment
Market production	Independent NPIs, but primarily engaged in market production	Corporations	(Some) private universities (Some) private hospitals	Higher education sector Business enterprise sector, except for university hospitals
	NPIs serving enterprises (domestic or non-resident)	Corporations	Industry-funded research institutes	Business enterprise sector
Non-market production	Controlled by government	General government General government	R&D foundations controlled by government Universities controlled by government	Government sector Higher education sector
	Not controlled by government	Non-profit institutions serving households (NPISH)	Independent research charities, learned societies, etc. (may receive very significant government grants but government cannot dictate major decisions) Also resident NPIs controlled by non-resident PNPs Independent universities with charitable status	Private non-profit sector Higher education sector

10.6 Private non-profit institutions that do not have a separate and distinguishable identity from their owners, such as most types of unincorporated associations, consortia, or membership organisations consisting of business enterprises, research institutions, universities, associations, etc., are not institutional units as defined in this manual. For this reason, the R&D activities of these unincorporated non-profit institutions should be attributed to each member according to their contribution. In other words, any unit in any sector that contributes to the R&D activities in unincorporated non-profit institutions should not have its activity counted as extramural R&D, but as their own intramural R&D.

10.7 The R&D activities of incorporated private non-profit institutes that consist of members belonging to two or more sectors should be attributed in accordance with the guidelines given in Chapter 3.

10.8 The treatment of individuals deserves particular attention. First, individuals who are employees and are employed by institutions, including self-employed persons, are not included in this sector. Second, the activities of individuals who pursue their personal interests as researchers or inventors on their own time are currently beyond the scope of the institutional approach to R&D statistics presented in this manual. Finally, the appropriate treatment of individuals who may be part of a group of persons employed in an institutional unit, but not as employees, and who directly receive funds for their R&D activities from third parties is discussed in Chapter 5.

Borderline with other sectors

10.9 Where there are strong linkages between private non-profit units and government, it may not always be clear into which sector a particular non-profit unit should be classified. Many foundations or charities that are originally or primarily funded by individual donors also receive important shares of their funding from the government. These units are usually classified with the PNP sector. The demarcation with the Government sector should be based on the degree of control that the private non-profit units can exert over how they operate (see Chapter 3 and Chapter 8).

10.10 It should be noted that some incorporated joint ventures or consortia between business enterprises and higher education institutions may be classified in the PNP sector. Depending on their legal status, some public-private partnerships may be also included in the PNP sector.

10.11 There exist many private non-profit institutions whose membership and/or activities span across international boundaries. The residence criteria that apply for business enterprises equally apply for these institutions. To be considered resident, the institutions must have a centre of economic interest in the relevant economy. Further guidance is available in Chapter 11; see, for example, Section 11.6 on Special case of international organisations.

10.3. Recommended PNP institutional classifications

Classification by main economic activity

10.12 It is recommended that statistical units performing R&D within this sector are classified by main economic activity according to ISIC or an equivalent national classification (United Nations, 2008).

10.13 For some countries it may be useful to classify institutions in the PNP sector by the intended purpose of their activity. Originally developed as an elaboration of ISIC for NPIs, one such classification reference is the Classification of the Purposes of Non-profit Institutions Serving Households (COPNI) (United Nations, 2000). However, the use of COPNI as classification criteria for the PNP sector is not specifically recommended by this manual. Further information on these classifications can be found online in annex guidance to this manual available at <http://oe.cd/frascati>.

Possible classification tags

10.14 In line with Chapter 3 and with a view to meeting the requirements of the SNA, it is suggested that statistical units performing R&D in this sector be tagged as either non-profit institutions serving households (NPISHs) or households, the latter of which are not surveyed according to the recommendations in this manual.

10.15 Further tagging of NPIs belonging to the other sectors using statistical registers would allow presentation of total performance as per general non-profit accounts. This would require adding-up:

- R&D by PNPs (e.g. R&D by NPIs in the PNP sector as defined in this manual)
- R&D by NPIs serving corporations and by other NPIs engaged in market production counted as part of the Business enterprise sector (see Chapter 7)
- R&D by NPIs controlled by government (see Chapter 8)
- R&D by NPIs in the Higher education sector (see Chapter 9).

10.4. Identification of R&D in the PNP sector

10.16 R&D in the PNP sector may be conducted in a broad range of fields. Depending on the nature of the PNP unit, in terms both of its membership and of its purpose, it may be more or less difficult to distinguish R&D from the other activities conducted in the unit. For example, a non-negligible number of units in this sector, such as research foundations, are comprised of members that are themselves research organisations. Identifying the R&D activities of these units will be more straightforward than in cases where the PNP institution has a broader goal than just research or science.

10.17 Many foundations or charitable organisations are active in the domains of health, environment, education or social and development aid,

among others. In a number of instances, these organisations conduct some form of research or study preliminary to their actions. The challenge will be to determine whether the type of research carried out meets the criteria set in Chapter 2 and can therefore be considered R&D. In other cases, the action itself may involve an R&D element that will need to be clearly identified.

10.18 R&D efforts may underpin the decision-making process within NPIs. While this may be outsourced to external organisations, some units in the PNP sector may have dedicated teams that are actively involved in carrying out analyses such as *ex-ante* and *ex-post* appraisals or evaluations, on ad hoc or even formalised bases. These activities may in some cases meet the criteria for an R&D activity. However, this is not always the case, and not all evidence-building efforts associated with programmatic evaluations and assessments can be accurately described as R&D. It is relevant to consider in some detail what is the expertise of those involved in the activity, how knowledge is codified within the organisation and how quality standards are assured in terms of the research questions and the methodology applied. There is a significant risk that some types of socio-economic consultancy (internal or external) are inaccurately represented as R&D.

10.19 In the domain of health, it may be necessary to distinguish R&D from health care actions (see Chapter 9 on the Higher education sector, Section 9.3) and from clinical trial phases that are considered to be R&D (see Chapter 2, Section 2.7 on definitions).

10.20 Chapter 2 gives useful complementary information on the boundaries between R&D and education or other science and technology activities and also provides examples of R&D activities in the social sciences and humanities, and in service activities.

10.5. Measuring R&D expenditures and personnel in the PNP sector

Private non-profit intramural R&D expenditure (PNPERD)

10.21 The main aggregate statistic used to describe R&D performance within the PNP sector is PNPERD, Private Non-Profit Expenditure on R&D. PNPERD represents the component of Gross domestic expenditure on R&D (GERD) (see Chapter 4) incurred by units belonging to the Private non-profit sector. It is the measure of intramural R&D expenditures within the Private non-profit sector during a specific reference period. As a general rule, intramural R&D expenditures in the PNP sector should be measured according to the recommendations explained in Chapter 4, Section 4.2.

10.22 Some NPIs play a dual funding-performance role in R&D activities. In those cases, the institution's intramural expenditures for conducting R&D activities should be differentiated from the expenditures for conducting R&D activities by other extramural units, i.e. PNP funds for extramural R&D. However, such NPI funds

that are received by other NPIs for the performance of intramural R&D should be reported by the receiving NPIs as external funds from these other NPIs.

10.23 Some institutions in this sector may also play an intermediary role in the funding flows between the ultimate funders and the actual performers. As explained in Chapter 4, external funds that the unit receives and subsequently passes through to others should not be included as R&D funding by the unit.

Functional distributions for PNPERD

Distribution of PNPERD, by sources of funds

10.24 Priority should be given to reporting R&D expenditure by the source of funds according to the guidance given in Chapter 4 of this manual.

10.25 Some philanthropists and research charities based on donations from the public also provide funds to support R&D activities. These are usually dedicated to specific areas or topics and mainly conducted in universities and research institutes as well as in hospitals. More recently, crowd-funding, which calls on individuals and households to support R&D as well as other activities, has emerged as a new private funding source.

10.26 Data on R&D funding from institutions, individuals and households in the PNP sector should be collected from performers in all sectors, including the PNP sector, and measured despite the sector's residual nature and often its small size.

10.27 Individuals and households can be included as funding sources for R&D (while they are excluded from the scope of measurement as R&D performers). With a view to having the sources of funds correspond to the breakdowns of the SNA, it may be possible to make a distinction between institutes, which are part of NPISH on the one hand, and individuals and households on the other hand.

10.28 As explained in Chapter 4, only the funds that are provided explicitly for the purpose of conducting R&D in the statistical units should be counted as external funds. The funds that are provided for a general purpose to the R&D performing institutes or which are grants, subsidies, gifts or philanthropy that a statistical unit can use at its discretion should be counted as internal funds only if used for R&D.

Other recommended PNPERD distributions

10.29 It is recommended to distribute the intramural R&D expenditure of the Private non-profit sector by type of R&D costs, as is detailed in Chapter 4 (Table 4.1). These recommendations include a breakdown between labour costs of R&D personnel and other current costs (current expenditures) and capital expenditures (by asset type).

10.30 It is recommended to distribute PNPERD by type of R&D (see Chapter 2) and by field of research and development (FORD). At least the top level of FORD should be collected.

10.31 Consideration may be given to distributing PNPERD data by socioeconomic objective, based on the Nomenclature for the Analysis and Comparison of Scientific Programmes and Budgets (NABS) (Eurostat, 2008) categories and other national adaptations with a direct correspondence to it.

10.32 It may be noted that, although not actively recommended by this manual, COPNI classification categories (see section 10.3) may also be used to distribute PNPRD.

PNP funds for extramural R&D

10.33 As explained in Chapter 4, Section 4.3, it is suggested that the funds for extramural R&D should be measured in surveys of R&D performers in the PNP sector, distinguishing between affiliated and non-affiliated recipients. In collecting these data, it is likely that PNP reporting units include not only funds provided for R&D performance in other PNP institutions but also individuals and households, who are by definition part of the PNP sector, but who would not be captured within R&D institutional surveys. Data collectors should attempt to provide the relevant guidance to ensure that only funding for extramural activities that meet the R&D definition criteria are included.

R&D personnel in the PNP sector

10.34 The number of R&D personnel, and in particular researchers, should be measured according to the recommendations provided in Chapter 5. These totals should include both internal and external R&D personnel in the same way as is recommended for the other sectors. In particular, R&D performance in the Private non-profit sector may be carried out by external self-employed professionals who are acting as intramural R&D consultants but belong to the Business enterprise sector.

10.35 It should be noted that independent workers may be found among internal R&D personnel (also termed “R&D persons employed”) in the Private non-profit sector, which by convention includes households (see Chapter 5).

10.36 For measurement purposes, it is recognised that the Private non-profit sector often may include individuals contributing to intramural R&D on a largely unpaid basis. As detailed in Chapter 5, volunteers are unpaid workers providing a statistical unit with a defined R&D contribution. Volunteers can be included in the external R&D personnel totals only under very strict criteria:

- they contribute to the R&D intramural activities of private non-profit institutions
- their research skills are comparable to those of employees
- their R&D activities are systematically planned according to the needs both of the volunteers themselves and of the institution.

10.37 Their contribution should be appreciable and an essential condition for enabling the institution to undertake an intramural R&D activity or project. Separate reporting of the number of volunteers contributing to R&D in the PNP sector would be of particular interest (see Chapter 5 for further guidance).

10.38 Doctoral students and R&D grant holders may occasionally contribute to R&D activities in this sector.

10.39 The costs of these specific categories of personnel will in many cases fall under “other current costs” or will not be reported at all.

10.6. Survey design and data collection in the PNP sector

Survey design

Identification of statistical units: Practice and challenges

10.40 As mentioned in Chapter 6, frame information may be less comprehensive for this sector. The list of possible statistical and reporting units should be maintained and updated through the usual sources, such as business registers, directories of R&D institutions, associations, as well as the results from previous surveys. Countries may include questions on R&D performance in more general surveys to NPIs in order to identify the possible R&D performing statistical units.

10.41 Only the institutions that meet the conditions of R&D performance explained in this manual should be identified as possible statistical units for the R&D measurement. In accordance with the institutional approach used for R&D measurement, individuals and households should be excluded from the frame population.

10.42 More so than is the case for other types of institutions, control over NPIs may change over time, for example with government control becoming more prominent. When this happens, care should be taken to ensure that the necessary reallocation of institutions to the other sectors is made according to the definitions in Chapter 3.

Implications of individuals as R&D funders

10.43 Some forms of R&D funding by individuals present radically new approaches or make renewed use of channels that were very significant several decades ago. For example, wealthy philanthropists can play a major role in funding research institutes or promoting research initiatives related to several possible domains. They may do this as individuals or through charitable or mixed institutions such as foundations or trusts. This manual recommends that the measurement of such flows is primarily adopted from the perspective of the performers. Funding flows should be captured on a gross basis, regardless of the potential extent of tax benefits to donors.

10.44 Crowdfunding, which is being enabled by new online technologies, has also become an emerging and potentially promising source of R&D funds. Crowdfunding is generally described as the practice of funding a project or venture by raising monetary contributions from a large number of people, typically via the internet. Individuals respond to crowdfunding for R&D purposes. One example is the field of health and medical research, where they may have a direct interest as patients.

10.45 R&D-related crowdfunding constitutes a new funding model with which individuals do not necessarily receive equity but other types of benefits such as naming rights for new discoveries, acknowledgements in journal articles, visits to field sites, tax deductions, etc.

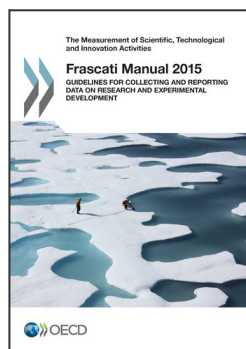
10.46 Those phenomena may cause an under-estimation of domestic R&D totals if the recipients of such funds are not captured through surveys or related methods. Data collected from funders and crowdfunding platforms may help assist in improving registers of R&D performers.

Funder-based approach (complementary)

10.47 As previously noted, institutions in the PNP sector may both perform and fund R&D. Therefore it is recommended that such performers also be asked about their funds for extramural R&D. However, in some countries there are many institutions in the PNP sector (e.g. foundations and charitable organisations) that do not have intramural R&D but do provide often large amounts of funds for extramural R&D (usually in the form of grants or gifts – i.e. transfer funds) generally to higher education or other non-profit institutions (either within or outside the PNP sector). While this manual recommends collecting data from R&D performers rather than R&D funders, the funder-based approach is also acknowledged as a complementary practice. Such an approach should be chosen only as a second-best option, and the sample primarily should be focused on institutions in this sector, as opposed to individuals and households.

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