Recommendations to TOSSD Task Force

Pillar 2: How should TOSSD identify and score Research and Development (R+D) Spending with International Development Spill-Overs? Health as a case study.

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1. Purpose

This submission to the TOSSD Task Force (TF) is aimed at clarifying some key conceptual issues which need to be tackled by the TF to bring clarity on what, where, when and how to count under this important subset of the overall bundle of Development Enablers, (Pillar 2 of TOSSD).

It focuses on the case of officially-supported **research and development** (R+D), particularly that subset of R+D mainly occurring within advanced, and some emerging, countries, but having major positive regional or global spill-over effects, i.e. loosely speaking global public good (GPG) spending. It uses **health-related** R+D as an exemplar, both because of its relative importance and complexity in its own right, and in the expectation that key selection decisions relevant to this sector will likely carry across to other areas of SDG-relevant technological innovation, such as agriculture and climate change- to which space does not allow us to do justice here.

2. Introduction and Context

2.1 What's at stake?

There is a long tradition of official support for scientific and technological discovery and innovation. The latter often has the classic features of a public good, within a given country let alone internationally, meaning that its benefits can be enjoyed simultaneously by very many people and (with important caveats related to intellectual property rights) access to these benefits cannot easily be excluded. Think, for example, of polio vaccines or anti-malarial medication, or for that matter improved plant technologies.

For this very reason, there is often also a strong case for public intervention (such as subsidies, guarantees, or direct provision) against market failure, i.e. a situation where private businesses would otherwise, quite rationally, not commit a socially optimal level of resources to R+D. In the international development context, this may take the form of companies not committing to otherwise desirable and feasible R+D, if they believe the main country markets for the innovation cannot afford it at prices which generate adequate financial returns. The remedy might be some differential pricing scheme (if there are sufficient solvent markets to cross-subsidise insolvent ones), some level of official subsidy and/or offtake guarantees for low-income consumers, or a mixture of both.

The transformational power of R+D for the SDGs is very large, whether it takes the form of cumulative small improvements to and adaptation of existing technologies or-at the other end of the spectrum- 'moon shots', where substantial costs are sunk with a small probability of success-but huge potential social returns. TOSSD should try to encourage mutually supportive public and private action at both ends of the spectrum, and all along it.

2.2 Resource patterns

R+D spending (of all kinds, ignoring the GPG filter for now) is huge, as is the share of R+D which is officially financed. As a share of GDP, OECD countries on average spend some 2.3% of GDP on domestic R+D (GERD basis, OECD main Science and Technology indicators), and China just under 2.1%. Counting only *government financed* domestic R+D, the OECD average is 0.64%, with Chinese official support estimated at 0.42% of GDP (OECD, op cit.).

Government annual budget allocations (GBARD) for R+D with a health objective, which as we discuss later are only about half of a broader basket of official support including tax instruments, range from a high of over $34 billion (PPP, average 2014-2016) for the US, with the UK at $3.5 billion and eight other countries over $1 billion on a comparable basis (China is not in in this dataset) (OECD R+D Statistics)

By a much narrower definition, specifically for R+D on “neglected diseases” impacting particularly on developing countries and meeting other stringent conditions, total public funding is still over $2 billion a year (Table 1), with nearly three-quarters of it from the US alone, and a significant presence in the top 12 by India and Brazil. Such amounts are already far in excess of ODA recorded for “medical research” (CRS code 12182), totalling less than $300 million for all provider countries and $258 million from DAC countries, using the same 2014-2016 average. (Admittedly, this definition excludes spending enabled by core contributions to multilateral agencies, like the health global funds, that are major R+D funders, as well as R+D items contained within other purpose codes related to health.)

Depending considerably on the eligibility criteria TOSSD selects, as we discuss below, health-related R+D could easily enter into TOSSD Pillar 2 at an order of magnitude in the mid- to high single $ billions. Also, its country provider distribution is quite skewed, with relatively few countries accounting for a large majority. It is also important to note the involvement of emerging economies, partly also given their substantial and fast growing pharmaceutical and biomedical industry capabilities.

Table 1. Top Public Funders of R+D for Neglected Diseases

Country	US$ (millions)										2016 % of total
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
United States of America	1,442	1,463	1,687	1,606	1,568	1,668	1,491	1,457	1,415	1,490	73
United Kingdom	88	90	126	138	112	79	107	112	92	101	5.0
EC	113	122	112	87	104	89	106	104	126	77	3.8
India		40	27	40	45	45	53	40	45	50	2.5
France	14	27	45	37	56	50	73	60	60	47	2.3
Germany	12	3.5	32	35	30	51	42	45	51	43	2.1
Netherlands	31	25	25	17	23	14	22	17	4.9	23	1.1
Australia	20	28	25	28	35	44	23	34	20	22	1.1
Brazil	22	24	29	10	11	19	15	8.7	7.4	18	0.9
Switzerland	7.5	4.7	8.5	15	15	17	17	19	21	18	0.9
Japan	4.5	7.3	6.1	9.3	3.4	2.5	11	11	14	17	0.9
Sweden	19	22	28	17	17	16	5.9	6.0	8.3	15	0.7
Subtotal of top 12^	1,827	1,909	2,172	2,045	2,026	2,108	1,979	1,921	1,870	1,922	94
Total public funding	**1,932**	**2,041**	**2,295**	**2,176**	**2,143**	**2,207**	**2,095**	**1,994**	**1,954**	**2,034**	**100**

Source: Policy Cures, G-Finder, 2017

2.3 The SDG setting

R+D, and accelerating technological progress and innovation in general, are centre-stage in the SDG in different ways. First, under SDG 17 (means of implementation) there are overarching objectives relating to technology facilitation and knowledge-sharing, such as SDG targets 17.06 to 17.08. Second, several thematic SDGs including on health, agriculture, education and climate change have individual R+D ambitions implicit or explicit in them. In health (SDG 3) for example, we find

"3.b. Support the research and development of vaccines and medicines for the communicable and non-communicable diseases *that primarily affect developing countries" (*our italics)

as well as implicit calls for more R+D on specific diseases, health systems and other dimensions of this SDG.

The heart of the SDG is their *universality*, so promoting R+D for delivering global public goods, or combatting global bads, is ethically different to promoting R+D as an agenda *specifically* benefitting developing countries, however that is defined.

The Task Force needs to wrestle with this ethical dilemma, also as other major Pillar 2 enablers/disablers are unlikely to fall neatly into this narrower, second category. Do we want to arrest global warming, full stop, or only to the extent of its particularly dire effects

on, say, small island, coastal and semiarid developing states? What might the latter approach look like in practice, and would/could we deploy official support to mitigate carbon emissions differently either way? (adaptation is a different issue, NB, as a national not global public good).

In health, there are few major health burdens that are not already common-obviously not, so far, at equal incidence levels- to both advanced and developing countries. Indeed, the burden of what were once thought to be rich-country (mostly lifestyle-related) health challenges has also become dominant, or will soon do so, in all developing regions. At the same time, TOSSD needs to have some reasonable filtering rules to restrain the political temptation to record as support for sustainable development large public investments which overwhelmingly benefit provider governments' own domestic populations.

2.4 What positive R+D behaviours should TOSSD incentivise?

While the risk of "fake news" by TOSSD providers in this area must be kept in mind, we should focus first on the desirability of positive incentives. These should particularly encourage, for example, official support for R+D on hitherto neglected topics, on those with uncertainty surrounding paybacks but potential game-changers or "disruptors", on expansion of knowledge with broad ramifications beyond a single health (in our case) challenge, and more generally the patient and sustained application of science, information and technological ingenuity toward solving large development challenges. The flipside is that as far as possible, TOSSD should not encourage mere "displacement activities", or worse, simply re-badging of unrelated government expenditures so as to claim, spuriously, they constitute significant international enablers.

The likely incentive advantages of being more permissive therefore need to be carefully weighed by the TF against the downside risks of TOSSD being gamed in this area, as in others. It may be politically and practically easier in some debateable cases, such as the inclusion or exclusion of tax-based official R+D support, to start with a more restrictive rule, but remain open to proposals for expansion if and when robust methodologies are put forward later. For other cases, like attempting to draw a line between "pure" and purpose-oriented basic research as we discuss below, a more liberal interpretation from the outset may make eminent sense.

2.5 Introducing some key policy choices

in logical order, these seem to us to be (1) Drawing the line between developing and advanced country (or global) impact; (2) Distinguishing between local and networked R+D spending; (3) Dealing with purpose clarity, uncertainty and lags; and (4) Choosing among official support instruments, above all whether to include both direct and tax-based support. We discuss these four in turn below.

2.6 What selection criteria should we keep in mind?

The selected options should ideally: (1) positively incentivise key SDG actions, as above; (2) be technically feasible, including practicality/costs (e.g. builds on published datasets and

methodologies), and replicability; and (3) they should also ideally be politically feasible (e.g. in terms of wider perceptions of the fairness of Pillar 2 reported amounts by major providers).

3. Question 1: Developing versus advanced country (or global) impact?

Problem definition: to what extent should TOSSD count health R+D spends which benefit populations of *both* developing *and* advanced countries? Should there be some threshold balance between potential impact on advanced versus developing countries that should not be exceeded?

Possible approaches

a) *literal SDG*: "diseases which *primarily affect* developing countries" (SDG 3.b above), also sometimes expressed more strongly as "*disproportionately* affect". This developing country "preference" is sometimes expressed through global disease-burden lists as excluding, e.g., so called WHO "Type 1" conditions, like many cancers, defined as "incident in both developing and developed countries, with large numbers of vulnerable populations in each". The cut-off point might be where the ratio of developing: advanced burden, standardised using DALYs (disability-adjusted life years lost) for 100,000 population is, say, below 3 (WHO, 2012). Example: G-FINDER annual neglected disease research surveys. Other, milder, thresholds, e.g. below a ratio of 1 which signifies equal incidence (per 100,000) between developed and developing countries, could be used.
b) *mixed approaches* e.g. Grand Challenges (Canada and Gates), Brookings, DFID, (see references) which require at least *substantial* developing country impact (hence disease incidence), alongside other factors, such as differential product accessibility/affordability and private sector returns across country income categories. Suitable in particular for ranking R+D challenges and opportunities, and recognising market failure issues. No single agreed benchmark for all purposes.
c) *minimum restriction*: exclude only R+D on conditions or products/technologies whose likely impact is overwhelmingly in advanced countries, especially the home market of the TOSSD provider (allowing if possible, for "re-purposed" or dual uses in developing country settings). The suggested twin trigger conditions for such an exclusion could be a somewhat lower DALY burden ratio (developing: developed) than parity, of say 0.5 or less, coupled with a DALY in developing countries below say 100 per 100,000. Just 9 out of the 90-odd global burdens of disease (GBoD) analysed by country income group by WHO in 2012 would have failed both these tests. These lists are obviously evolving, mostly including narrowing developing/developed gaps, so any firm cut-off points should be updated and reviewed by experts.

Recommendation: (c). Elaboration: as set out in 2.3 above, the ethos of the SDG is universalistic, and this should apply nowhere more than in promoting GPGs, like much health R+D. Disease-burden lists are a reasonable and robust consensus basis for judging

relative impact, but should not be applied too strictly. Our immediate purpose is anyway not to identify the highest priorities for investment in "neglected" diseases, but to encourage all R+D likely to have a substantial impact on developing countries. Incidence in developing countries as a group will still be in the vast majority of cases larger than in developed ones, and in rarer cases (about 12/90 based on 2012 analysis) only slightly smaller, after applying the cut-off ratio at 1:2 as against 1:1, and only 4 of those also fail the 100/100,000 developing country incidence test. There will anyway remain significant developing country health challenges on both sides of this lower threshold. Some "double lock" rule of this type therefore seems sensible as a first approximation.

4. Question 2: Location of spending on R+D

Problem definition: should one count in Pillar II support for health R+D spending physically located *only* within TOSSD provider countries, or also within developing countries? Should cross-border R+D spending in the latter be counted under Pillar 1?

Possible approaches:

a) *Try to distinguish between global and local R+D functions.* Some analysts (e.g. Schaeferhoff et al, 2015, Figure 1 below) have attempted to deconstruct health ODA (and so-called ODA-Plus, now effectively TOSSD) functions as Global/Local, regardless of physical location, from which one can see that all R+D is tentatively classified as Global. Some applied research spends (on e.g. adapting national health systems) might yet fall under local, but global product/intervention R+D is far larger by volume. There are also potentially distinct methodologies and datasets for reporting 'Gross Expenditures on R+D" versus "Gross National Expenditures on R+D" (GERD vs. GNERD, OECD Frascati Manual 2015), although we understand that GERD is by far the most used in practice.

b) (*Simply count main provider-reported (global) spend,* recognising the very large extent of cross-border R+D networking usually embedded in it. Allow for some cross-border assistance for local functions benefiting individual developing countries, as now, under Pillar 1, providing the country of location (not a group of similarly affected countries) is the principal beneficiary. Where, conversely, R+D activities conducted in one developing country have large spill-over effects in several others, this is by definition Pillar 2.

c) Try to *minimise risks of double-counting* as between multiple, mostly advanced country locations, reporting separately, but belonging to the same corporate/university entities or networks. GNERD in principle allows for that, but databases may be too weak to disaggregate in practice.

Recommendation: (b), with (c) attempted where possible. Elaboration: It is probably not feasible to disaggregate the typical R+D expenditure chain down to all country locations which are relatively small by volume within the overall value chain. More important, in most cases, that localised R+D function is anyway closely linked to a GPG, benefitting multiple countries, developing and developed, so would count as Pillar 2 by definition, as above.

Corollary. It would be beneficial for the TOSSD project, technically and politically (particularly in the case of the large emerging R+D spenders such as Brazil, China and India) to recognise some developing country locations as being themselves major Pillar 2 R+D providers. This would be a further incentive for such countries to opt-in, for both pillars, as a provider under TOSSD rules.

Figure 1

Panel: **Classification of donor aid for health global and country-specific functions and subfunctions**

Global

Supplying global public goods

- Research and development for health tools
- Development and harmonisation of international health regulations
- Knowledge generation and sharing
- Intellectual property sharing
- Market-shaping activities

Management of cross-border externalities

- Outbreak preparedness and response
- Responses to antimicrobial resistance
- Responses to marketing of unhealthful products
- Control of cross-border disease movement

Exercising leadership and stewardship

- Health advocacy and priority setting (convening of policy makers for negotiation and consensus building for strategy and policy)
- Promotion of aid effectiveness and accountability

Country-specific

Providing support to low-income, lower-middle-income, and upper-middle-income countries for country-specific purposes

- Achieving convergence—ie, for control of infectious diseases and to provide reproductive, maternal, newborn, and child health interventions and services
- Controlling non-communicable diseases and injuries
- Health-systems strengthening

Source : Schaeferhoff, M. et al 2015

5. Question 3. Purpose clarity, uncertainty and lags

Problem definition: R+D (in health and in general) is a continuum, from the acquisition of basic knowledge which is clearly not application-specific, through much more applied and purpose-oriented activities (like clinical trials), right down to specific and continuous product and technology adaptation and improvement[2]. Outcomes are inherently uncertain

[2] "R&D involves uncertainty, which has multiple dimensions. At the outset of an R&D project, the kind of outcome and the cost (including time allocation) cannot be precisely determined relative to the goals. In the case of basic research, which is aimed at extending the boundaries of formal knowledge, there is a broad recognition of the possibility of not achieving the intended results. For example, a research project may succeed in eliminating a number of competing hypotheses, but not all of them. For R&D in general,

and often distant, and causal attributions can be difficult. *Should TOSSD scoring be limited to the application-specific end of the spectrum, and if so, how*?

Possible solutions

a) *Exclude only "pure" basic research.* Recognised research classifications (Frascati Manual, Stokes Quadrants, see Figure 2 below) separate "basic" research that is *use-inspired* (a.k.a. Pasteur's quadrant), or *oriented* toward solutions to known problems, from the rest (Bohr quadrant), which is not. The latter, allowing oriented basic research, is also the G-FINDER approach for neglected diseases.
b) *exclude all basic research* (bearing in mind that the oriented part makes up an estimated 60% of all neglected disease R+D spend), therefore allowing only applied research.
c) *no exclusions*, bearing also in mind that, for example, government R+D spend statistics (GBARD) do not currently distinguish between any such types/levels of research. However, attribution of some basic (Bohr Quadrant, Fig 2) prospective research results to any health challenges, let alone those substantially incident in developing countries, may be impossible

Figure 2: the Stokes Diagram and the Pasteur Quadrant

Research inspired by:		**Considerations about the use?**	
		no	yes
Search for fundamental understanding?	yes	Pure basic research (Bohr)	Use-inspired basic research (Pasteur)
	no		Pure applied research (Edison)

Source: De Souza et al (2009) after Stokes (1997)

Recommendation: (a), if practically feasible, else (c), which is effectively self-limiting.

there is uncertainty about the costs, or time, needed to achieve the expected results, as well as about whether its objectives can be achieved to any degree at all. For example, uncertainty is a key criterion when making a distinction between R&D prototyping (models used to test technical concepts and technologies with a high risk of failure, in terms of applicability) and non-R&D prototyping (preproduction units used to obtain technical or legal certifications)." (OECD Frascati Manual, 2015 edition).

Elaboration. Basic research is the fountainhead of many invaluable scientific and technological breakthroughs benefiting us all- even if, sometimes, via unexpected chains of consequences. So, to exclude it entirely would be to discourage investment in one of the great underlying motors of global development. It is not by accident that this is also the area where most officially funded, and in many cases officially provided, R+D occurs, as the long and uncertain attribution chains, and large potential spill-overs beyond the individual investor, weaken private market incentives to invest and justify public intervention in some form. However, the practicalities of disaggregating the Pasteur quadrant from within all basic research spending may prove daunting, and conversely, simply including all basic research (with potentially multiple applications across SDG themes) could both involve considerable double counting and expose TOSSD to debates on, e.g. ineligible defence-related R+D connections[3]. TOSSD may therefore have to default to e.g. a system of project word searches for lists of eligible health-inspired uses.

Corollary. TOSSD is a system of measurement of development-related inputs, not of outputs or outcomes. Therefore, while the lags and uncertainties of health R+D outcomes are obviously factored in in various ways by decision-makers, in terms of input scoring they are no more relevant than in the case of ODA or for that matter TOSSD Pillar 1 (cross-border development finance) reporting. The DAC does not discount ODA for longer-gestation development activities (like planting forests, or early childhood education) though time preference questions may enter into providers' assessments of the merits of alternative ODA-supported or TOSSD Pillar 1 investments. Similarly, TOSSD Pillar 2 should be entirely agnostic between R+D profiles with improbable, even remote, but potentially huge pay-offs (moon-shots, discussed earlier), compared to smaller, incremental spending, with a higher likelihood of success, but delivering outcomes on a more modest scale. So, we recommend that *no* explicit calculus of expected returns, nor of discounting for time preference, be used within this element of Pillar 2.

6. Question 4. Direct versus tax-linked official support

Problem definition: Advanced country (and increasingly emerging country) government support for R+D comes in multiple forms, including direct provision through state entities, as well as subsidies, guarantees, equity and quasi-equity stakes in and at least partly concessional loans to private entities (Figure 3). Counting of these is generally assumed to follow the rules the Task Force has already agreed for private-sector support under Pillar 1. However, R+D support within industrialised countries also includes a remarkably high and rising share of targeted tax deductions and credits-which now make up nearly half of all official support, much more in some countries. (Chart 2). *Should TOSSD Pillar 2 also count tax-based support for otherwise eligible purposes*?

[3] Consider also that substantial applied medical research, for example into protection of soldiers from debilitating tropical diseases, is already funded under military contracts in advanced countries, and yet can also benefit much wider populations.

Possible solutions

a) *Yes*, if feasible in terms of comparable data availability, as this can be a low-cost way to target official R+D support (depending also on whether the tax relief on offer is profit-contingent or not). The Frascati Manual does not include such items in GBARD but recommends collection of complementary tax relief data (GTARD), which does not yet appear to be systematic. Some tax vehicles are also profit- contingent and sometimes retrospective. Tax relief data on R+D should also be collected routinely for antitrust and other collective action purposes (such as EU state aid provisions). *No,* given data gaps and additionality concerns (below). There may also be risks of unintentionally promoting distortionary, anti-competitive and sometimes unsustainable, tax interventions. For example, some countries' deduction rates have fluctuated year-on-year from relatively low levels to over 100% of corporate R+D spend and back again. An expert analysis of the merits of different tax instruments for R+D needs to be undertaken for TOSSD at a later date.

Figure 3: typology of instruments to finance R+D with country examples

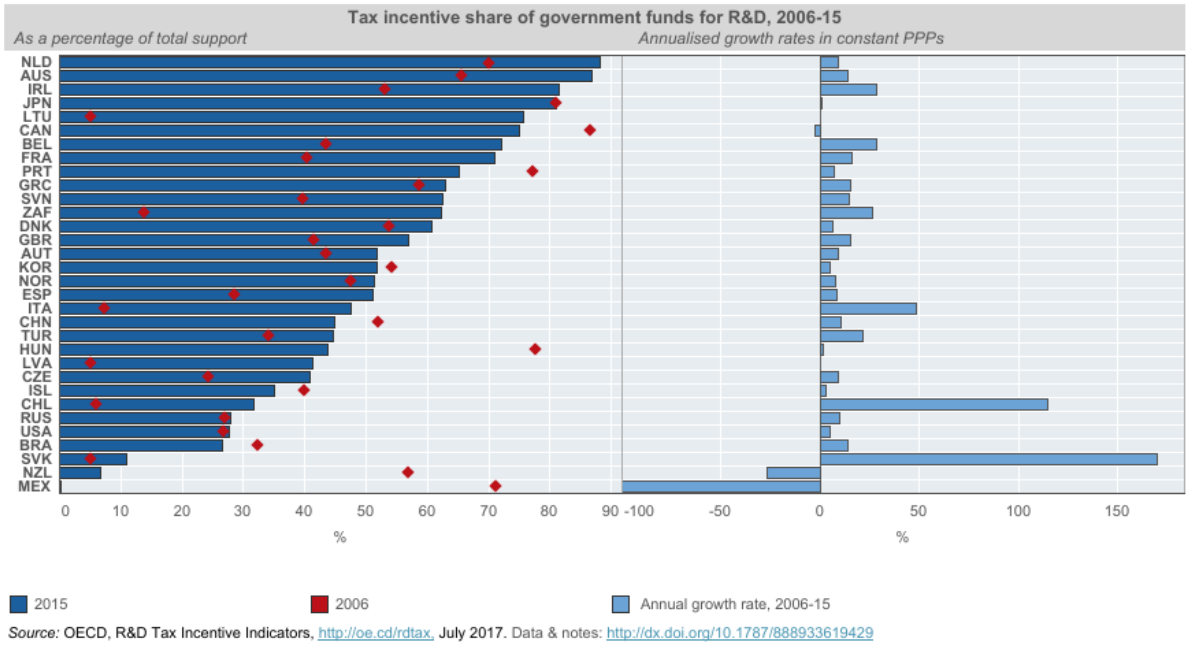
Financing instruments			Key features	Some country examples
Direct public funding	Grants, subsidies		Most common funding instruments. Used as seed funding for start-ups and innovative SMEs. Granted on a competitive basis and in some cases, on the basis of private co-funding. No repayment is usually required. Supply-side, discretionary instruments.	National Competitive Grants Programme, Industry Growth Centres Initiative (Austria), Feder Innterconecta (Spain), Enterprise and Competitiveness (Italy), High Growth Business Development Programme (Estonia)
	Debt financing	Credit loans	Government subsidised loans. Require sorts of collateral or guarantee. Obligation of repayment as debt. The investor/lender does not receive an equity stake.	Technological Credit (Poland), Growth Credit Guarantee Lines (Portugal)
		Repayable grants/ advances	Repayment required, partial or total, sometimes in the form of royalties. Could be granted on the basis of private co-funding.	Repayment Assistance Measures for Student Loans Programme (Canada)
		Loans guarantees and risk-sharing mechanisms	Used widely as important tools to ease financial constraints for SMEs and start-ups. In the case of individual assessment of loans, can signal ex ante the creditworthiness of the firm to the bank. Often combined with the provision of complementary services (e.g. information, assistance, training).	SME Loans Guarantees (Austria), Zakura (Czech Rep.), Investment Compact (Italy), Micro Loan Support Programme (Latvia)
	Debt/Equity financing	Non-bank debt/equity funding	New funding channels. Innovative lending platforms and non-bank debt or equity funds.	National Innovation and Science Agenda - crowd-sourced equity funding (Australia), Law on alternative financing and crowdinvesting "Alternativfinanzierungsgesetz" (Austria), Institution for Growth (Greece)
		Mezzanine funding	Combination of several financing instruments of varying degrees of risk and return that incorporate elements of debt and equity in a single investment vehicle. Used at later stage of firms' development. More suitable for SMEs with a strong cash position and a moderate growth profile.	Credit Line Mezzanine Financing (Portugal)
	Equity financing (*)	Venture capital funds and funds of funds	Funds provided by institutional investors (banks, pensions funds etc.) to be invested in firms at early to expansion stages. Tends to increasingly invest at later -less risky- stage. Referred as patient capital, due to lengthy time span for exiting (10-12 years). The investor receives an equity stake.	National Innovation Fund - Venture Capital Fund (Czech Rep.), COSME - Equity Facility for Growth (EU), Corporate Venture Programme (France), Venture Capital Support Programme (Turkey)
		Business angels	Provide financing, expertise, mentoring and network facilities. Tends to invest in the form of groups and networks. Financing at start-up and early stage.	Global Incubator Network (Austria), Business Angels Programme (Spain), European Network of Summer Academies (EU), Business Angels Co-investment Faility (Netherlands)
	Public procurement for R&D and innovation (*)		Create a demand for technologies or services that do not exist, or, target the purchase of R&D services (pre-commercial procurement of R&D). Provide early-stage financial support to high-risk innovative technology-based small firms with commercial promise.	Entrepreneur Growth Strategy (Estonia), Strategy for Public Procurement (Sweden), Small Business Innovation Research (SBIR) Program (US)
	Technology consulting services, extension programmes		Expand the diffusion and adoption of already existing technology, and contribute to increase the absorptive capacity of targeted firms (especially SMEs). Provide information, technical assistance, consulting and training etc. Of particular importance in low income countries.	National Research Agenda (Indonesia), new funding schemes to finance technological extension (Peru)
	Innovation vouchers		Small lines of credit provided to SMEs to purchase services from public knowledge providers with a view to introducing innovations in their business operations.	Innovation Voucher (Austria, Chile, Estonia, France, Hungary, Portugal, etc.)
Indirect public funding	Tax incentives (*)	Tax incentives on corporate income tax	Used in most countries. Broad range of tax arrangements on corporate income tax, including tax incentives on R&D expenditure and, less frequently, tax incentives on IP-related gains. Indirect, non-discriminatory.	Knowledge Development Box (Ireland), Stability Law 2015 - tax incentives for enterprises investing in R&D (Italy), Corporate Income Tax Incentive for R&D Investments (Latvia)
		Tax incentives on personal income tax and other taxes	Available in many countries. Broad range of tax incentives on R&D and entrepreneurial investments and revenues that apply to personal income tax, value added tax or other taxes (consumption, land, property ec.). Indirect, non-discriminatory.	National Innovation and Science Agenda (Austria), tax incentives for researchers (Indonesia), tax incentive for individuals for investment in SMEs (Iceland)

Source: The Innovation Policy Platform, Government financing of business R&D and innovation

Recommendation: begin with (b) but move toward (a) as and when reporting on GTARD or similar basis has progressed sufficiently, subject to a further expert discussion of the pros and cons of different tax instrument eligibility under TOSSD.

Corollary. *Private sector mobilisation-again*. The large engagement of the private sector in health R+D, alongside governments and foundations, is obviously worth incentivising further and steering toward particular SDG priorities. However, the classic concern with "additionality", familiar under the private sector investment mobilisation rubric of Pillar 1, is pertinent here also. All government support for privately provided R+D is vulnerable to the charge of weak or absent additionality (or high substitution), that is, when government funding merely substitutes for funding the private sector would have otherwise committed anyway. The design of much tax relief for R+D may be particularly inadequate in incentivising additional private R+D. (see Brookings, 2017, and Appelt, 2016).

Figure 4: Tax incentive share of Government Funds for R+D



Source: OECD, R&D Tax Incentive Indicators, http://oe.cd/rdtax, July 2017. Data & notes: http://dx.doi.org/10.1787/888933619429

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