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## Social Infrastructure Finance and Institutional Investors. A Global Perspective.

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# Social Infrastructure Finance and Institutional Investors

## A Global Perspective

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**Abstract**

Social infrastructure has endured a long period of neglect in most developed and emerging countries, with chronic underinvestment exposed by the coronavirus crisis 2020. Private sector investment in social infrastructure has widely fallen back over the last decade - this in contrast to *economic* infrastructure. One of the outcomes of the last global (financial) crisis 2007/08 was a slow revival of economic infrastructure policies, and a growing involvement of institutional investors.

This is the first, more systematic account of social infrastructure investment from an international perspective, leading to several key conclusions. The public sector will remain the dominant funding and financing source. Nonetheless, much more private capital could flow with greater clarity on social assets and projects, given their very diverse specific characteristics. There are various investment strategies that can realistically be improved and expanded. Sustainability, impact and SDG investing open a new door for asset owners.

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Discussion Papers are produced to study new investment topics and stimulate discussion. Comments welcome. Contact: georg@georginderst.com © Georg Inderst, London, UK

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## 1. Introduction

After a long period of decay and neglect in many countries, policy makers are rediscovering the significance of good infrastructure for economic and social progress. At the same time, investing in infrastructure has become increasingly popular with institutional investors since the mid-2000s. The current, intensifying debates mostly focus on *economic* infrastructure, and the bulk of the money flows into transport assets such as airports or railways, energy networks and water utilities, and increasingly into renewable energy.

In contrast, investment in *social* infrastructure has received little attention from both politicians and investors, at least so far, despite growing concerns by the public. Infrastructure funds often do include assets in health, education and public buildings but the scale is very limited. Rather worryingly, private sector investment has even been falling back again in many segments in recent years – against the general investment trend. This raises questions and motivates further investigation about why, and what can be done.

Schools, hospitals and all sorts of public facilities are at the centre of our lives. Nonetheless, surprisingly little is known about "the hardware" of social infrastructure, how it is financed and even less so about future investment needs. Therefore, it seems useful to start with establishing some key facts about developments from the fragmented evidence available.

This study is the first, more systematic account of social infrastructure investment in a global perspective. It gives an overview on private finance and investment in the field, including the activity of institutional investors and their challenges. It discusses the specifics of social infrastructure assets and projects, the range of traditional investment instruments, and the emergence of new financing vehicles. In the end, some important conclusions and recommendations for both policy makers and investors are presented.[1]

## 2. Definition and relevance of social infrastructure

Definitions of "infrastructure" center on basic physical structures and "hard" public assets that provide essential services to society. A common distinction is between economic infrastructure (primarily transport, energy, water and waste, telecommunications and digital networks) and social infrastructure.

The main focus here is on "hard" social infrastructure (and related contracts), being aware that there are also other concepts of social infrastructure that cover "soft" factors and

[1] This paper builds on earlier work discussing (social) infrastructure investment, e.g. Inderst (2015), Inderst (2017a), the expert paper for the "High-level Taskforce on Investing in Social Infrastructure in Europe" by the European Commission (EC) and the European Long-Term Investors Association (ELTI). Main focus here is on private finance and institutional investment in a global view.

"intangible" institutions (e.g. Felli et al. 2014, Lipparini et al. 2015, ITUC 2016). Furthermore, "hard" infrastructures are enablers and only represent a small portion of the total costs in producing services in health, care, education, security etc. (Social Services Europe 2018).

*Social infrastructure sectors*

Definitions of social infrastructure vary considerably across investors, and so does the range of subsectors.[2] The universe spans widely over eight areas. The two core subsectors within social infrastructure are health and education while housing is often – but not always - added as an important third. Further subsectors often include public buildings and culture/entertainment facilities. In practice, fund managers stretch the investment universe even further into "alternative real estate" and other community-related services (Box 1)

*Box 1: Social infrastructure sectors*

1. Health: hospitals other medical facilities, emergency services, care homes for the elderly, assisted living
2. Education: schools, universities, kindergartens, training places
3. Housing: affordable and social housing, public servant housing, blended city living
4. Security & defence: courthouses, prisons, police stations, army barracks
5. Other government buildings: e.g. for administration, local government
6. Cultural and recreational:
   - libraries, museums, community and convention centres
   - sport stadiums, swimming pools, music halls and other entertainment structures
   - public parks, playgrounds, other communal green spaces
7. Other "alternative real estate": e.g. car parks, logistics and data centres
8. Community-related services: such as local transport, bus stations, water and wastewater, connected district utilities and renewable energy, urban development.

Source: Author

It is worth noting that there are several grey areas with controversial viewpoints:

a) Public infrastructure normally has a connotation to large physical structures in the economy with a network or a monopolistic element. However, many social infrastructure

[2] Three examples of definitions used in the financial markets:
Preqin: "Assets that accommodate social services. Includes educational facilities, defence-related assets, government buildings, healthcare/medical facilities and judicial buildings".
IJGlobal: "Social Infrastructure - convention centres, street lighting, urban regeneration, facilities and contracts related to culture, defense, education, fire & rescue, government, healthcare, housing, justice, sports & leisure and waste & recycling".
EDHEC TICCS classification (5 sub-sectors with several sub-sectors): defence services, education services, government services, health & social care services, recreational facilities.

assets are similar to (smaller, private) *real estate* assets, such as senior and student housing (although the types of contract and income may be different).

b) Some infrastructure funds and indices hold leisure assets such as amusement parks, fitness studios, casinos, holiday resorts and other privately-run entertainment facilities. This may help increase the investment universe but raises the question how far the "infrastructure" term can opportunistically be stretched.

c) There is also an overlap with *private equity* funds, containing private companies running data centres, high tech/green service or medical/care facilities, for example.

A final caveat refers to the distinction of "hard" and "soft" that is becoming increasingly blurred. The importance of digital technology in the provision of infrastructure services is growing. "Smart infrastructure" does not stop short of social sectors. It combines physical infrastructure with digital capacity, e.g. for medical diagnostics, technology used in education and housing or other "smart city" applications.

### *Public policy definitions*

There are no official or agreed definitions of infrastructure by governments and international institutions. Social infrastructure is often narrowly confined to health and education but there are also much wider approaches. An example is Infrastructure Australia (2019, p. 388): "Social infrastructure is comprised of the facilities, spaces, services and networks that support the quality of life and wellbeing of our communities." It uses six broad social sectors: health and aged care; education; green, blue and recreation (including parks, waterways etc.); arts and culture; social housing; justice and emergency services.

From a social policy perspective, there is an even wider perspective as a "civic operating system", such as all outdoor spaces, paths and canals, religious and other gathering places, clubs and associations, regular events and occasions, and even digital communication networks (e.g. Gregory 2018). One could add public toilets, information boards and bicycles racks, "basic utilities" (such as post offices and bank branches), "and much else that is of public use. Not to speak of facilities for civic protection, emergency and disaster recovery.

Commercial spaces, too, play a significant role of the societal texture, e.g. pubs and cafés, stores and hair salons, street food and street markets (Klinenberg 2018, Latham and Layton 2019). As does "the environment and buildings for social and market activities", including retail, industrial and science parks, and other market places (LGA 2019).

### *Economic and social impact*

The impact of infrastructure investment on economic growth (or employment and productivity) is a much-studied subject. Most of the research focusses on economic infrastructure. Long-term indirect effects and spillovers across sectors are still little

understood in economics (Yoshino et al. 2018, Välilä 2020a). As an example, Atiola et al. (2017), argue that roads may contribute to economic growth at a faster speed than schools, rationalizing the priority of economic infrastructure especially in developing economies.

Good education, health, housing, security and recreational facilities are essential for all political systems. Social scientists are stressing the links to human and social capital formation (e.g. Roskruge et al. 2010), inequality and poverty, wellbeing and happiness, social cohesion and human rights (e.g. OHCHR 2019). However, externalities of investment in social infrastructure are difficult to quantify (Martin 2019, McClements et al. 2016). The Australian Infrastructure Audit makes a rare and brave attempt at providing specific figures on the substantial contribution to the economy and society more widely.[3]

**Summing up,** the relevance of social infrastructure for the economy and society is – while evident – little researched. Definitions of "hard" social infrastructure vary widely in public policy, academia and finance. In practice, investor universes tend to go well beyond the core sectors of health, education and social housing. This is mainly driven by the hunt for investable assets with financial characteristics similar to real estate.

## 3. Investment volumes, needs and gaps

What is the actual volume of social infrastructure investment, and what are the requirements for the future? How is it financed, and what role does the private sector play? A first point of reverence is given by macro statistics in social infrastructure.

National accounts provide sectoral statistics that can be aggregated in different ways. In addition, infrastructure transaction volumes are typically collected by commercial data providers. It needs to be said that data accessibility, transparency and quality remain poor in this field. Many service providers only cover economic sectors. Better statistics are required not only from governments but also from the financial and infrastructure industry.

### 3.1. Current investment levels

Almost all global and national studies about infrastructure needs and gaps, starting with the OECD and World Bank in the early 2000s, concentrate on economic sectors. PwC (2015)

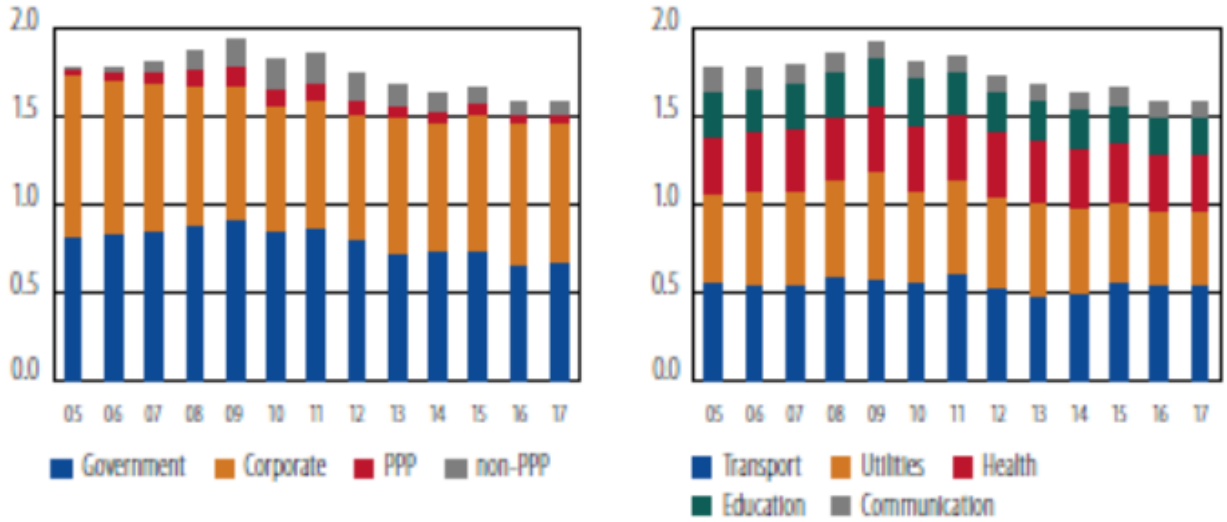
[3] "Compared to economic infrastructure, individual social infrastructure assets may be smaller in scale – a local public swimming pool, park or single social housing dwelling – however, together these assets form networks that deliver nationally significant benefits to the community, the economy and our environment. On a national scale, social infrastructure sectors contributed 12.5% of Australia's GDP in 2018. These sectors employ just over 3 million people (or around a quarter of Australia's workforce). Australia has over 1,300 public and private hospitals, and over 9,400 schools. We make just over 100 million visits to public pools every year, and over 80% of us attended an art and cultural venue or event in 2018. There are close to 400,000 social housing dwellings across the country, and over 40,000 prisoners in over 100 prisons." (Infrastructure Australia 2019, p. 391)

used a wider range of sectors in the national accounts. According to their analysis, 15% of global infrastructure spending was in health and education sectors in 2012, i.e. about $600bn.[4] The share of the two social sectors is about 27% in Europe (i.e. 0.8% of GDP) and 23% in the USA; it is typically around 10% in emerging countries.

For the European Union (EU), the European Investment Bank (EIB) uses figures of gross fixed capital formation (GFCF) in five Eurostat sectors: transport, communication, utilities, health and education. "Recent years have seen a marked decline in infrastructure investment. At 1.6% of gross domestic product (GDP), investment activities in 2017 were markedly below their pre-crisis levels." (EIB 2019, p. 65) The contraction in infrastructure investment since the financial crisis 2007-08 was primarily caused by a weaker public sector while the corporate sector broadly held up its contribution (Figure 1).

Social sectors captured about 0.5-0.6% of GDP over the last 12 years, of which about 0.3% in health and 0.2-0.3% in education. Investment figures vary considerably across EU countries. The average over a decade for, e.g., Germany is about 0.5% (health) and 0.3% (education), for France 0.5% and 0.4%, for Italy 0.2% and 0.1%, and for Spain 0.3% and 0.3% (EIB 2016).[5]

*Figure 1: Infrastructure investment in the EU by source and sector (as % of GDP)*




Source: EIB (2019). Data missing for Belgium, Croatia, Lithuania, Poland, Romania. UK excluded.

There are major differences in the financing source of the two social sectors. Public sector finance dominates education while health is more balanced. Corporate infrastructure

[4] $ refers to US$, € to Euros, £ to Pound Sterling C$ to Canadian Dollar A$ to Australian Dollar.

[5] An earlier analysis, Wagenvoort et al 2010, based on Eurostat (ESA 1995) statistics of GFCF in four infrastructure sectors, estimated EU social infrastructure investment at about 1% to GDP (0.6% in health and 0.4% in education) for the period 2006-2009. Since 2016, the EIB uses new Eurostat data in "other buildings and structures", which is just one of six asset types within GFCF. Such proxy reduces the level of investments compared to earlier statistics of total GFCF somewhat. However, it may also miss out on some investment activity, especially in the social sectors.

investment had an average share of about 21% in education and 47% in the health sector over the years 2011-2017 (in comparison: transport about 25%, utilities 55%, telecom 90%). Interestingly, corporate investment in health has been up strongly in recent years.

## 3.2. Future investment needs and gaps

Major studies in this field concentrate on economic infrastructure, and they generally conclude that more resources will be needed to keep pace with "normal" economic and demographic growth. Projections for future investment requirements vary, with core estimates around 4% of GDP globally, and 6-8% for developing countries. This is higher than the current spending of about 2.5-3% of GDP globally. Additional requirements, e.g., for climate change policies or higher social targets, come on top of that (Inderst 2013).

What do we know about the future investment needs in social infrastructure? Health and care infrastructure spending tends to become more significant in ageing societies. Also, the demand for leisure and sports facilities goes up with the general well-being. In the developing world, the priority is normally given to water, transport, energy and communication networks while in middle-income countries the pressure grows to expand and improve social infrastructure (e.g. in China). Attempts at quantifying longer-term social infrastructure investment needs and gaps have started only in the last few years.

*Japan*

Ishizuka et al. (2019) undertook a comprehensive estimation of social infrastructure demand for Japan. They use both a micro and macro approach for four sub-sectors: health, education, public housing and government buildings. The results indicate that the country needs to invest $95-124bn (in 2016 prices) annually in the coming fifteen years to sustain the present level of social infrastructure services. These figures equal to 1.8-2.4% of the annual GDP (Table 1). Current spending (in 2016) is about 0.6% of GDP, leaving a large "investment gap". The estimated demand is 2-3 times larger than the current investment for schools, 3-5 times larger for health facilities, and 1-2 times larger for public housing.

*Table 1: Social infrastructure demand in Japan 2016-2030*

| | *Current spending* | *Future demand* |
|---|---|---|
| (annual) | % GDP | % GDP |
| Health | 0.15% | 0.9-1.2% |
| Education | 0.2% | 0.6-0.7% |
| Public housing | 0.15% | 0.3% |
| Government buildings | 0.1% | 0.1% |
| Total | 0.6% | 1.8-2.4% |

Source: Ishizuka et al. (2019)

The authors stress a number of other interesting points:

- These estimates provide a minimum boundary for social infrastructure demand. In particular, other sectors such as culture and sports facilities are not included.
- The analysis distinguishes between the construction of new social infrastructure and operation and maintenance (O&M). O&M and replacement will be substantial in the coming decades. The annual cost of sustaining the existing stock of social infrastructure is a high value of about 1.5% of GDP.
- "Measures to bridge the gap, such as making public investment more efficient and mobilizing more private finance (...) are needed to be taken urgently." (p. 29)

*Europe*

EIB (2018) estimated the annual infrastructure investment gap for the EU27 (i.e. all Member States except the UK) until 2030 at roughly €155bn, i.e. 1.2% of GDP and 5.8% of GFCF (Table 2). The three social sectors health, education and social & affordable housing add up to €31bn (0.24% of GDP), corresponding to one fifth of the total infrastructure gap.[6]

*Table 2: Annual infrastructure investment gaps for EU27*

| | EUR billion | % of GDP | % of GFCF |
|---|---|---|---|
| ICT (broadband and digitalisation) | 50 | 0.38 | 1.86 |
| Energy generation and grids | 17 | 0.13 | 0.63 |
| Water and waste | 7 | 0.05 | 0.26 |
| Social and affordable housing | 6 | 0.05 | 0.22 |
| Education | 8 | 0.06 | 0.30 |
| Health | 17 | 0.13 | 0.63 |
| Mobility | 50 | 0.38 | 1.86 |
| **Total** | **155** | **1.19** | **5.77** |

*Source: Estimates by the EIB Projects Department.*
*Note: GDP and Gross Fixed Capital Formation (GFCF) refer to 2017. All numbers refer to EU27, i.e. all Member States except the UK.*

Source: EIB (2018)

Other studies see much higher gaps. According to the EU High Level Task Force, the current investment in social infrastructure in the EU is approximately €170bn per annum, i.e. about 1.1% of GDP. The infrastructure gap in social infrastructure investment is estimated at a minimum of €100-150bn annually (0.7-1% of GDP) up to the year 2030. The estimates in Table 3 includes a 25% uplift on current spending of €42bn plus a rough €100bn to address additional items, in particular long-term care and energy poverty (Fransen et al. 2018).

[6] The EIB uses a "bottom-up" approach, based on sector experts' estimates of additional investment needed to catch up with economic peers, notably the US, or to achieve political targets set by the EU. "For mobility and social infrastructure, investment needs reflect past investment backlogs combined with higher future needs to accommodate demographic trends, migration and other megatrends." (EIB 2018, p. 63)

*Table 3: Investment in social infrastructure in the EU*

| | Current investment | | Investment gap | |
|---|---|---|---|---|
| (annual) | € bn | % GDP | € bn | % GDP |
| Education and lifelong learning | 65 | 0.4% | 15 | 0.1% |
| Health and long-term care | 75 | 0.5% | 70 | 0.5% |
| Affordable housing | 28 | 0.2% | 57 | 0.4% |
| Total | 168 | 1.1% | 142 | 0.9% |

Source: Fransen et al. (2018)

SDA Bocconi (2018) calculates an investment gap of €477bn over the next 20 years in the healthcare sector, and a gap of €509bn in the education sector.[7] This would correspond to a combined investment gap in the two sectors of about 0.3% of GDP. The share of private investment is expected to remain about 20% in education under a future "policy scenario". In contrast, in health, it could rise to nearly 60% from the current share of 35% by 2040.

*Asia and developing countries*

In 2017, the Asian Development Bank (ADB) estimated a financing gap of $459bn per year, or about 2.4% of GDP, for *economic* infrastructure in developing Asia up to 2030. Ra and Li (2018) find a nearly as high gap of $448bn (2.3% of GDP) for health and education. However, their estimate includes recurrent spending which is much higher than capital spending. By implication, the "hard" social infrastructure gap appears to be more like 0.5% of GDP.[8]

In Africa, infrastructure has been traditionally publicly financed, owned and operated, with the exception of some smaller-scale private solutions. Social sectors attract little foreign direct investment (FDI), and there seems little appetite among private investors for social infrastructure projects, (Collier and Crust 2015, Priensloo 2019, Inderst and Stewart 2014).

Multilateral development banks (MDB) worldwide are asked to mobilize more private capital for lower and middle income countries. Actual volumes are still small. In 2017, e.g., $25bn were catalyzed for infrastructure, of which 15% went into social projects (MDB 2018).

UNCTAD estimated capital requirements to meet the UN's Sustainable Development Goals (SDGs). Total investment needs in developing countries range from $3.3tn to $4.5tn per year (i.e. 10-13% of GDP), for basic economic infrastructure, agriculture and rural development, climate change mitigation and adaptation, health and education (UNCTAD 2019).

[7] A "top down" approach is used. The investment gap is defined as the difference between a "business-as-usual scenario" and a policy or "maximizing benefit" scenario.

[8] The study adopts the UNESCO and WHO recommendations as benchmarks for education and health spending needs. "As less than 20% of social sector spending is on capital, and more than 80% on recurrent spending (staff salaries), the financing gap for capital will likely be smaller than estimated. Due to data limitation, however, this study is not able to disaggregate the spending on the "hard" and "soft" sides of the social sector spending." (Ra and Li 2018, p. 6)

For health and education, aggregate investment needs of $540bn (1.6% of GDP) compared to $150bn (0.4% of GDP) "business-as-usual" (BAU) investment, leaving a gap of $390bn (1.2% of GDP) (Table 4). Capital investment accounts for a third of financing needs in health but only 10% in education. The private sector contribution to actual investment is estimated at 20% in health and 15% in education. UNCTAD notes that current investment trends are positive for health but negative in education.

*Table 4: Capital investment requirements to meet the SDGs to 2030 (annual)*

| | *Capital investment (annual)* | | | |
|---|---|---|---|---|
| *$ bn* | *BAU* | *needs* | *gap* | *(% GDP)* |
| Health | 70 | 210 | 140 | 0.4% |
| Education | 80 | 330 | 250 | 0.7% |
| Total | 150 | 540 | 390 | 1.2% |

Source: UNCTAD (2019)

**In conclusion,** the analysis of investment in social infrastructure and future needs is still at an early stage. The early and scattered evidence available in different countries indicates current investment levels of about 0.4-0.6% of GDP in the two core sectors health and education combined. The public sector tends to be the dominant financing source in social infrastructure, especially in education. Notably, the corporate sector undertakes significant investment in the health sector in some developed countries.

Future needs in social infrastructure are seen as much higher but estimates of investment gaps vary widely between 0.3% and 1.5% of GDP across regions. Only limited help can be expected from stretched public budgets, even with shifting policy priorities. Calls for more private capital involvement are rising but it is less clear how that can be achieved.

## 4. PPPs and project finance

The public sector was central to the ownership, financing, and delivery of infrastructure services post-World War II. Private sector participation rose in several countries from the 1980s as a result of privatisations and, from the 1990s, with public-private partnership (PPP or P3) schemes. Private capital is provided in two main forms: corporate finance (financed "on balance sheet" from the own resources of operating or service companies) and *project finance*, a contractual financing arrangement that is important in infrastructure.[9]

[9] Project finance is the financing of long-term infrastructure, industrial, extractive, environmental and other projects or services (including social, sports and entertainment PPPs) based upon a limited recourse financial structure where project debt and equity used to finance the project are paid back from the cash flow generated by the project, typically, a special purpose entity or vehicle (SPE/SPV).

Within project finance, one can distinguish between *PPP* and *non-PPP* arrangements. PPPs have become a policy option as an alternative to public procurement of infrastructure.[10] The UK, Australia and Canada were early adopters of PPPs; many other countries followed.

While Europe still has the largest share of projects (over one third), North America, Asia and Latin America are becoming more active. In-between "pure" public and private provision of services, rather different "PPP or concession models" of mixing public and private responsibilities are at work in different sectors countries and at different levels of government (e.g. Wright et al. 2020 for the health sector, Bergere 2016 for France).

The important distinction between *"funding"* and *"financing"* of infrastructure is to be noted. Financing is the provision of upfront capital (which is primarily an intermediary activity), with public, private or combined sources of finance. Funding refers to who ultimately pays, i.e. the users/consumers (via fees and charges) or taxpayers (via state "availability payments"), or a hybrid/combination of both.

### *Global project finance*

Data services recorded 100-120 finance deals in social and defence infrastructure in recent years with an aggregate value of around $25bn (IJGlobal 2020). They form only a small segment within all global infrastructure finance transactions of about $1tn. These include projects such as hospital deals and refinancing, stadium renovations, energy system modernization PPPs, courthouse PPPs, university PPPs etc.

In the sub-category of project finance, around 60 deals annually in social & defence infrastructure have an aggregate value of about $10bn against a total annual volume of about $300bn. The share of these sectors has fallen from about 8% in 2010-11 to around 5% in 2012-13, and to about 3% these days. In a nutshell, project finance is being used also for social infrastructure but volumes are rather small (well below 0.1% of global GDP). In fact, volumes and share of social infrastructure even went down over the last decade.

## 4.1. PPPs in social infrastructure

There is an academic view that PPP works best with user fees. The link between asset quality and service quality is typically stronger, e.g., in roads and ports than in hospitals and schools which makes the social infrastructure less contractible and re-negotiable (Välilä 2020b). "[PPP] works less well where returns need to be enhanced by a public subsidy, the

[10] PPPs involve a contract between a public sector authority and a private party/consortium to provide a public project or service. Incentive structures and the sharing of the various risks depend on the specific contract. A concession agreement refers to a contract between a company and a government that gives the company the right to operate a specific business, subject to certain terms.

terms of which are liable to change" (The Economist 2017). Such issues tend to be even stronger in developing countries with weaker institutions and governance (Estache 2010).

In practice, availability payments from public authorities are standard for PPPs in the health and education sectors, often linked to performance criteria. Various payment systems exist, and contract changes over time are often necessary (Engel et al. 2020). This constitutes an additional challenge for all sides, beyond the general ones for PPPs.

Now let's look at actual market developments across different regions.

### *Europe*

European PPP volumes had been rising from the 1990s to the mid-2000s. 2007 was the peak year with €26bn but volumes have been falling since. PPP figures have been in the region of €12bn-21bn since 2009, i.e. around 0.1% of GDP (EPEC 2019). Over the full reporting period 1990-2018, EPEC registered 1802 projects with a total volume of €369bn (Table 5). In terms of numbers, 70% of projects were in social sectors, of which 24% in education and 22% in healthcare. However, in value terms, the share of social sectors was much lower (35%). Social infrastructure projects tend to be much smaller than economic infrastructure projects (i.e. about €.110m compared to €.460m).

Table 5: EU PPP projects in social infrastructure sectors 1990-2018

| | *Projects* | | | | *average* |
|---|---|---|---|---|---|
| *1990-2018* | *number* | *%* | *value €bn* | *%* | *value (€m)* |
| Education | 434 | 24% | 35 | 9% | 81 |
| Healthcare | 388 | 22% | 50 | 13% | 129 |
| Public order and safety | 145 | 8% | 12 | 3% | 85 |
| Defence | 56 | 3% | 18 | 5% | 327 |
| General public services | 75 | 4% | 7 | 2% | 97 |
| Housing and community services | 83 | 5% | 8 | 2% | 90 |
| Recreation and culture | 79 | 4% | 7 | 2% | 85 |
| Total 7 social sectors | 1260 | 70% | 137 | 35% | 109 |
| *All PPPs* | *1802* | *100%* | *387* | *100%* | 215 |

Source: EPEC Data Portal (end of 2019); Author's calculations

Looking at more recent trends, PPPs are now somewhat more evenly spread across countries than in the past.[11] PPP bonds had a very modest recovery post 2013 in a few countries. Institutional investors are slowly becoming more active on the debt side of (especially larger economic) PPP projects. Critically, however, the value of all PPP

[11] Over the last 5 years (2014-2018), Turkey moved into first place with a volume of around €23bn, followed by the UK (€15bn), France (€11bn), Netherlands (€6bn), Germany (€4bn) and Italy (€4bn). The UK used to account for roughly half of European PPPs volumes but the share has declined substantially due to the sharp fall in PFI deals in social infrastructure.

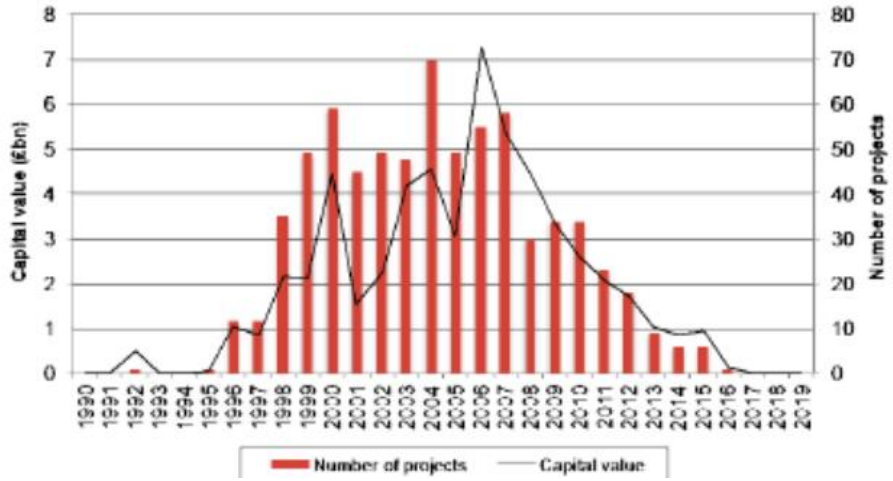
investments in social infrastructure has retreated to roughly €4bn per year. The recent shift from social to economic infrastructure is also reflected in a renaissance of the user-pay model, such as large transport or (French) broadband projects (EIB 2019).

*UK Private Finance Initiative (PFI)*

Given its historical importance, it is worth having a further look at the PFI, a form of PPP. UK Government statistics show about 700 PFI projects in 2018 with an aggregate capital value of £59bn. The value of PFI projects has been declining from a peak of £7.2bn in 2006 (about 0.5% of GDP) to nearly nil (Figure 2).

Over the period 1992-2012, the majority of PFI went into social infrastructure: hospitals £14bn (share of 24%), schools £12bn (21%) and other buildings (e.g. fire & police, courts, service centres) 5bn (9%). In terms of size, only six projects had a capital value above £1bn (large projects were mostly in transport or defence). In terms of size, only six projects had a capital value above £1bn. Most of the large projects were concentrated in defence or in transport.

*Figure 2: PFI project numbers and capital values*




Source: HM Treasury (2019)

Opinions on PFI were polarized from the beginning (Inderst 2017b). The British experience was often seen as a main reference model for private capital involvement in infrastructure. In the late 2000s, the criticism of PFI became more vocal.[12] A modified approach - called PF2

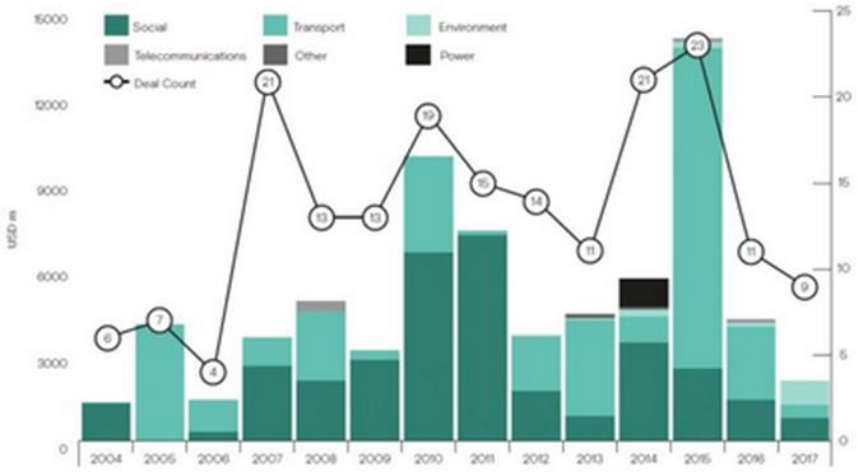
[12] Critics disliked PFI, and PPPs in general, for all sorts of reasons, ranging from the technical to the ideological: too expensive, too opaque, too slow and too inflexible. The private sector could make windfall gains while the risk transfer and potential future liabilities for the public sector were unclear. "Value for money" for the taxpayers was questionable (NAO 2018).
Vecchi et al. (2013) analysed the cost-efficiency of PFIs in the UK health sector facilities. Expected returns by the private sector exceed the underlying cost of capital by far (about 9% on average), despite the expected "low risk" nature of availability-based payments by the public sector.

from 2012 - had no success. In 2018, the government abandoned the whole PFI venture, citing two main reasons: inflexibility and fiscal risk to government. The pendulum is swinging back to more state spending, tighter sectoral regulation and partial re-nationalizations or re-municipalizations (e.g. railways, Transport for London).

### *Canada*

Canada is another country with a well-developed P3 policy, with some individual P3 projects dating back to the early 1990s. A second wave of P3s since the early 2000s was more focused in terms of sectors (health and transport) and regions (especially British Columbia and Ontario). According to CCPPP, 285 infrastructure projects had been delivered with a market value of C$139bn by the end of 2019. Annual P3 investments have been very volatile over the last 15 years between C$2bn and C$24bn (0.1-1% of GDP) (Figure 3).

*Figure 3: Canada P3 historic activity*




Source: Building (2018)

Nearly two thirds of projects are in social infrastructure. In terms of capital value, transport is the largest sector with a share of 51%. Social sectors add up to 40%, of which 27% in healthcare, 6% in justice, 3% in education and 3% in accommodation and the rest in others (Loxley and Hajer 2019, CCPPP 2016). The average value of social infrastructure projects is C$250m, against an overall average of C$400m. A substantial share is financed via capital markets, especially private placements to pension funds and insurance companies.

### *Other markets*

There are some more markets with a considerable activity. Figures by Infrastructure Partnerships Australia (2020) show an annual average of about A$1.5bn in social infrastructure PPPs over the last 20 years, i.e. roughly a fifth of overall PPP volumes or 0.1% of GDP. For South Korea, 400 social infrastructure projects are reported with a value of $22bn, i.e. a quarter of the total value of all infrastructure projects (Oktavianus et al. 2018).

In most other developed and especially developing countries, social infrastructure plays only a subordinated role, even in those with a sizeable PPP market for economic infrastructure, such as India, Chile and other Latin America. The World Bank Group's Private Participation in Infrastructure (PPI) investment database, for example, does not even cover social projects. There are widespread calls for a much wider use of social PPPs although less likely given the theoretical and practical difficulties of complex arrangements.

**Summarizing,** various PPP arrangements have been established in social sectors in Europe, Canada, Australia and other countries since the 1990/2000ss. However, the overall contribution of social infrastructure PPPs is tiny (a fraction of 0.1% of global GDP). In fact, investment volumes in social infrastructure project finance and PPPs have even fallen back again in recent years.

## 5. Institutional investors as financiers

Invocations are growing for more private sector finance in infrastructure, especially from "asset owners" such as pension funds, insurance companies, sovereign wealth funds (SWF), and endowments, as well as fund managers and wealth managers. How suited are they as financiers of social infrastructure, and what are the experiences so far? New investment trends have evolving in parallel in recent years:

- more international investment, including emerging markets
- passive investment style (following established investment indices)
- factor investing (exploiting risk factors driving returns such as value, momentum or size)
- alternative assets, especially "real assets" and private/unlisted assets
- liability-driven investment (to match longer-term pension/insurance liabilities)
- dis-intermediation, direct investing in companies and projects
- collaborative investment models (syndication, investment platforms etc.)
- long-term, sustainable, responsible, socially responsible investing (SRI); environmental, social and governance investing (ESG); green/climate, impact investing.

### *Investor motivations*

Of relevance here are in particular real assets, sustainability and impact investing. The general "investment case" for investing in infrastructure has been well flagged in many places as have associated risks (e.g. Inderst 2009, 2010). The key potentially favourable investment characteristics can be summarized as:

- long-term, predictable (and often inflation-linked) cash flows
- low sensitivity to business/market cycles
- low correlation to other assets, portfolio diversification
- a route to sustainable, responsible, green and social investing.

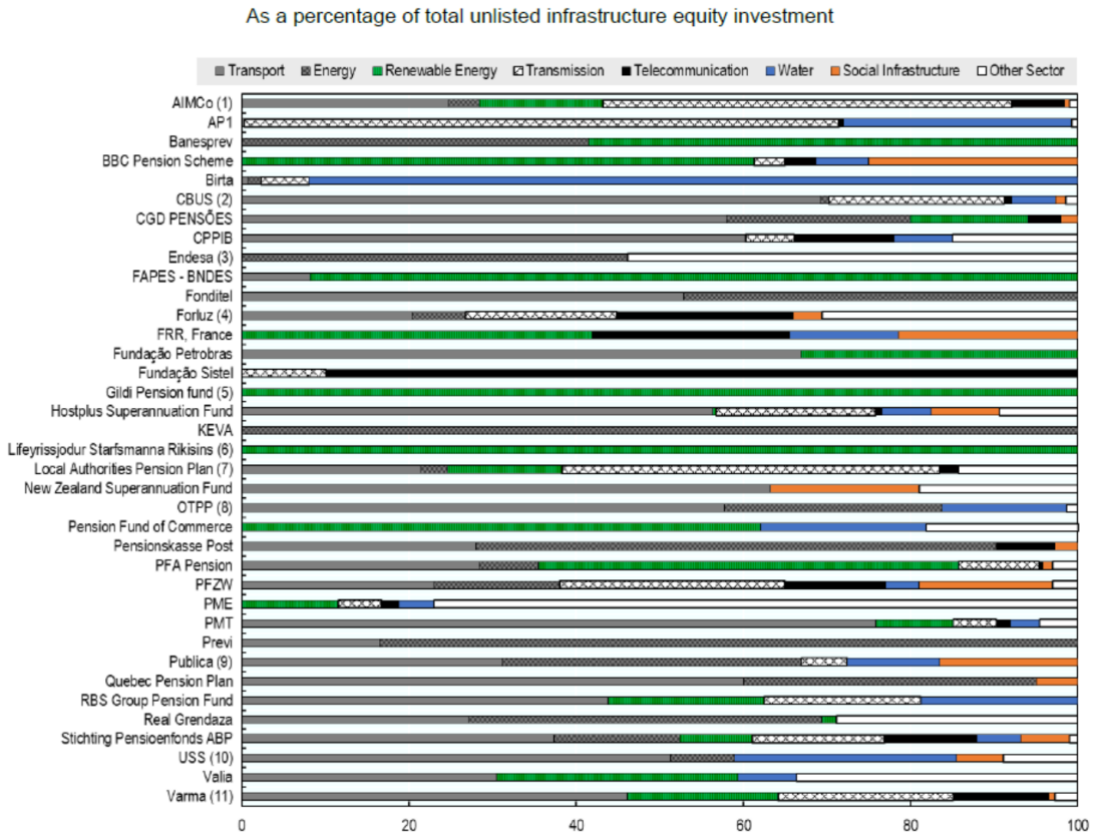
It is important to recognise that investors are not a homogeneous group. Main objectives, time horizons and risk appetites differ widely across countries, types and other dimensions. For example, SWFs may have strategic and political motives beside risk/return considerations; charities or family offices may have certain non-financial preferences.

### *Asset allocation to infrastructure*

Institutional investors control assets over $130tn. The data service Preqin (2019) recorded about 4000 infrastructure investors with nearly $600bn of capital invested in infrastructure globally at the end on 2019. Australian and large Canadian *pension funds* have been pioneers in this field since the 1990s and early 2000s, and their asset allocation to unlisted (or private) infrastructure is well above other countries (Inderst and Della Croce 2013). A growing number of investors in Europe and other regions followed from the mid-2000s, According to surveys, many investors intend to increase allocations further going forward.

Overall, institutional investors' asset allocation to unlisted/private infrastructure is still low, as one can deduct from the pieces of evidence available. In the Preqin universe, the median asset allocation to infrastructure by the reporting investors is around 2% for pension funds and foundations and around 1% for insurance companies (it is worth noting that non-reporting funds often hold no or few such investments).

*Figure 4: Infrastructure sector allocations of large pension funds and PPRFs*




Source: OECD (2019a)

The OECD (2019a) survey collected data from 125 large pension funds and public pension reserve funds (PPRF), 49 of them (accounting for $2.8tn) provided data on their infrastructure allocations. It revealed $110bn of unlisted infrastructure equity and $10bn of infrastructure debt investments, i.e. a combined 4.3% of assets of reporting funds but only 1.3% of assets of the full universe of funds. Allocations well above average of 8-10% were reported by three Australian, three Canadian and one British pension fund.

The OECD survey also received information about the breakdown by infrastructure sectors from 37 funds (Figure 4). In this sub-set, transportation was the largest component, followed by renewable energy and conventional energy. The overall share of such assets is only 4% within the total infrastructure allocation of pension funds, although a number of them have substantial holdings.[13]

## 5.1. Constraints and challenges

There are various barriers for a higher involvement of institutional investors in infrastructure. They are on the supply side (e.g. regulatory uncertainties, lack of viable projects), demand side (e.g. investor resources and capability for illiquid assets), and in the intermediation process (e.g. inappropriate, expensive fund vehicles) (e.g. Della Croce 2011). In some countries, the high segregation of the pensions system and the lack of scale of asset owners is a hurdle. Furthermore, there are sectoral constraints that need to be worked on.

*Investor constraints*

Many pension systems work with "prudent person" principles, and do not have hard investment limits on asset classes (other than on portfolio concentration). In some countries, quantitative and qualitative investment constraints are in place. They may affect illiquid, private or alternative investments, infrastructure funds or projects, etc.[14] European countries apply different risk-based solvency and funding regulations for pensions. Many defined benefit (DB) pension plans face a maturing membership, underfunding, stricter supervision and accounting rules. Therefore, they have a preference for lower-risk, brownfield assets and PPP investments with state availability payments.

Insurance companies have solvency rules to respect. Traditionally, they hardly had any investments in unlisted infrastructure assets but many have lately become more active. They, too, have a strong preference for lower risk assets, especially investment grade

[13] Funds with sizeable weightings include the Dutch PFZW, NZ Superannuation, French FRR, UK BBC scheme and Swiss Publica. Earlier OECD surveys mentioned, e.g., the Quebec Pension Plan, Argentina's Sustainability Guarantee Fund, Peru's Previ, South Africa's GEPF and Canada's OMERS.

[14] Alonso et al. (2016) constructed an "Index of regulatory liberalization for the investment of pension funds in infrastructure". According to this index, of the larger markets, Canada, the Netherlands, Belgium and Ireland share rank 1 globally, followed by Australia and the UK. The USA, Germany, Italy, France and Spain are in the mid-field. Emerging markets tend to score lower.

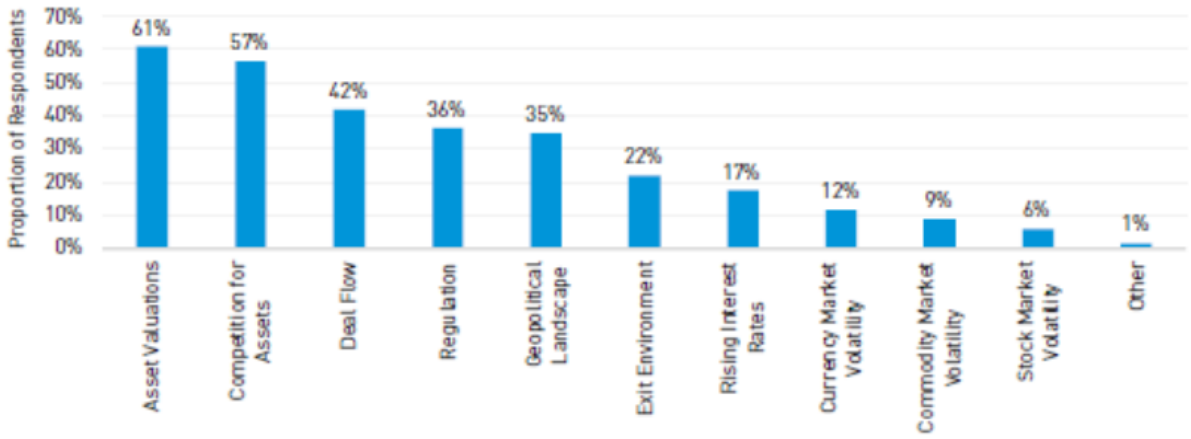
infrastructure debt. With tightening banking regulation post financial crisis (Basel III), bank loans have been partially substituted by direct private loans from non-bank institutions. The European Insurance and Occupational Pensions Authority (EIOPA) softened the rules in Solvency II for certain categories of "lower risk" infrastructure assets (equity and debt, project and corporate) in 2015 and 2016.

*SWFs* all tend to have their own laws and investment rules. They are rarely constrained from the various ways of investing in infrastructure, including making sizeable direct placements.

### *Challenges and risks*

These days, key challenges perceived by infrastructure investors is the insufficient pipeline of projects that leads to a supply-demand imbalance and strong competition for assets even at "high" asset prices (Figure 5). Many investors have, so far, avoided greenfield infrastructure as they are inexperienced with construction risks. Others are nervous about assets that are exposed to competitive conditions, or volatile demand, especially in transport. Some famous headline failures are also seen as a warning signal. Political, regulatory and reputational risks are a general concern for trustees and boards everywhere.

*Figure 5: Key challenges for infrastructure investors*




Source: Preqin (2019)

Investors are learning about risk management by the private sector in infrastructure. Some countries have introduced mechanisms for overcoming barriers to higher institutional investor involvement in (social) infrastructure and climate investments. They include:

- capital pooling platforms (led by investors or public institutions) (OECD 2014a)
- state fiscal incentives (grants, loans, equity, subsidies, tax incentives and others)
- risk mitigation mechanisms, such as guarantees (e.g. EFSI – see Box 2, insurances, credit enhancement, and other instruments (OECD 2014b, OECD 2015, World Bank 2015)
- currency risk protection, political risk insurance (e.g. MIGA)
- support programmes by national and multilateral development banks (e.g. loans, funds)
- and the creation of new institutions to that avail.

*Box 2: EFSI and InvestEU*

A key element of the Investment Plan for Europe ("Juncker-Plan") is the €500bn European Fund for Strategic Investments (EFSI). At the end of 2019, €84bn of EFSI financing had been approved, claiming a total EFSI-related investment of €458bn. The share of social infrastructure investments is only 4% (EC 2019).

The follow-on InvestEU programme should streamline EU support and is expected to mobilize at least €650bn in additional investment between 2021 and 2027.[15] The four main policy areas are: financing projects in sustainable infrastructure; research, innovation and digitisation; SMEs; social investment and skills. The "social window" – still the smallest one - was doubled to €4bn, and should mobilize €50bn of capital (i.e. roughly 0.05% of GDP).[16]

**Overall,** investing in infrastructure has become increasingly popular with institutional investors, not the least spurred by continued low interest rates, raising investment volumes in private/unlisted infrastructure to about $600bn globally. This is still only around 1-2% of institutional portfolios worldwide, with a wide dispersion of allocations across investors. Economic infrastructure dominates while only a small fraction of that goes into social sectors (e.g. roughly 4% of all infrastructure assets of large pension funds). Various investment constraints and barriers for institutional investors have been identified. Lack of available and investable projects remains a challenge, particularly so in social infrastructure.

## 6. Characteristics of social infrastructure assets

Investors need to become more accustomed to the specifics of social infrastructure investments. They relate to a) the underlying project or company, b) the sub-sector, c) the characteristics within an investor portfolio or d) to the investment vehicle used. Some elements are more favourable than others.

*Size*

Projects in social infrastructure tend to be much smaller than in economic infrastructure. The average deal size in social infrastructure fluctuates between $100-200m, well below the

[15] EFSI started in 2014 as a guarantee (not a fund) from the EU budget and EIB capital to facilitate €315bn of investments, especially for infrastructure and SMEs. In 2016, the EC proposed increased guarantees in order to mobilize more private capital (target of €500bn with a multiplier of 15). With InvestEU, there is an EU budget guarantee of €38bn, plus EIB and other resources of €9.5bn, assuming a multiplier of 13.7 (for the social window it is assumed 12). Three quarters of InvestEU will be implemented by the EIB, the rest by national development banks and other institutions.

[16] It reaches well beyond social infrastructure: projects in social housing, schools, universities, hospitals; skills, education, training; social innovation; healthcare, long-term care and accessibility; microfinance; social enterprise; integration of migrants, refugees and vulnerable people, and more.

average size of economic infrastructure projects (now over $500m). The median UK PFI project value was less than £50m. Social projects are often below the radar of large investors who focus on big-ticket brownfield assets such as airports and utility networks.

*Funding and cash flows*

With social PPPs or concessions, the cash flow often comes from longer-term availability payments by the public sector, e.g. long-term lease contracts. Some investors prefer such steady income streams to user fee assets with cyclical consumer demand (e.g. toll roads). Investors need to be reassured that availability payments and annual increases are being honoured over the full lifetime of the project. In some more "commercial" areas of social infrastructure, the rental income is paid by the users as in real estate.

*Inflation-protection*

Revenues in social infrastructure are often linked to inflation which is useful for investors seeking real assets to match liabilities that are inflation-indexed.

*Risk and return expectations*

The contractual arrangements of social PPPs are often seen as relatively "conservative" (especially with limited market/demand risk), with return projections in the single digits. Nonetheless, assets are often highly leveraged which can be yield surprises in difficult times.

*Performance*

Historical performance of infrastructure assets has widely met investor expectations after a decade of bull market, especially when entering the market at times of attractive valuations. More recently, there have been some disappointments in social sectors. Bankruptcies of service companies involved, e.g. with UK PFI, have reached the media headlines. The financial crisis 2007/08 had produced some negative surprises, especially where demand expectations were too high, combined with excessive financial leverage. The next recession will provide a much broader test.

*Portfolio diversification and concentration*

Social infrastructure assets often show low correlation to other assets. Demand for social services is usually not strongly linked to the business and interest rate cycles. There is also a high degree of heterogeneity within social sectors and regions, given very different contract partners. Concentration risk is lower than with portfolios that contain only a few large economic infrastructure assets.

*Operational issues*

Poor service quality and inefficiencies seem to be notorious in these sectors. Contracts need to be enforceable without much delay. Measuring outputs, outcomes, performance and impact is particularly difficult in social infrastructure (SDA Bocconi 2018). Therefore, good governance and management are paramount (e.g. Durán and Saltman 2015).

*Technology risk*

Technological change (e.g. digitization), is also affecting assets in health, education, housing and culture. PPP and other contracts may need to be adjusted to changing market conditions. Renegotiations are a difficult territory in theory and practice (Engel et al. 2020).

*Regulatory, political and social risk*

Political risk is inherent in infrastructure investment, even more when cash flows come from availability payments. Re-regulation is likely in this field, and feared by investors (e.g. Blanc-Brude 2012). There is also "social risk" and "reputational risk" if a project is opposed by pressure groups or the media. Recent examples are public opposition to private equity/infrastructure funds' involvement in US hospitals or prisons.

*Liquidity*

Long-term investments are often hindered by investors' liquidity concerns, especially for defined contribution (DC) pensions. Many social infrastructure assets are effectively real estate, and could be converted to other uses if needed. Given their relatively small size, they tend to exhibit a lower degree of "asset specificity" than economic assets (Välilä 2020b).

*Capacity issues*

Investors normally lack experience and expertise in the various sectors. There is also a perceived shortage of skilled specialist managers in these areas (Octopus 2018).

*Project pipeline and secondary market*

Investors increasingly bemoan the lack of a consistent supply of investable infrastructure projects. This is particularly true for social projects. Connected to this, the secondary market has become more active, with pools of assets moving, e.g., from banks and specialist funds to pension funds and insurance companies.

*Box 3: Criteria for investing in healthcare: an example*

QIC, the Queensland investor specialized in alternative assets, studied the investment opportunities in the healthcare sector from a long-term investors' perspective (QIC 2019). In their analysis, only a narrow subset of assets qualifies when assessed against key criteria for infrastructure investments (i.e. defensive, uncorrelated, essential social infrastructure assets, supported by multi-decade positive megatrends).

QIC identified opportunities in day and short stay hospitals as well as in long-term care facilities (less so in pharmaceuticals and medical tech). QIC believes the healthcare sector could benefit from an increase in responsible, active, long-term ownership. Active, customer-centric management focusing on patient outcomes and quality is paramount.

*Heterogeneity*

Last but not least, social infrastructure investments are not homogeneous. Facilities in health, education, judiciary, security, culture or recreation: they all serve different human

and social needs, with different users, business profiles, laws and regulations. Social and affordable housing is a particularly critical field as an "asset class" (Brennan et al. 2017). Box 3 provides an investor perspective on healthcare.

**To conclude,** social infrastructure assets have potentially attractive "stylized" investment characteristics such as non-cyclical demand, steady income and low correlation to other asset classes. However, they can also be small and fiddly, very heterogeneous with outputs difficult to measure, and subject to some political and renegotiation risks. This necessitates not only good management and governance but also appropriate investment vehicles.

## 7. Investment vehicles: old and new

Since the invention of infrastructure as a dedicated "asset class"' in the 1990s/early 2000s, much of the hype has been on private infrastructure investments, especially on infrastructure equity funds. Over the last decade, there has been a remarkable evolution of investment approaches in infrastructure along various dimensions: listed and unlisted, funds and direct, equities and bonds, by geography, sectors, asset types, development stages, etc. For social infrastructure, however, the investment options are currently still more limited.

### 7.1. Traditional equity and debt instruments

Listed equities, corporate bonds or municipal bonds are well-established investment instruments for infrastructure – but often overlooked in the social context.

*Listed equity, listed funds and infrastructure indices*

Investors traditionally have large investments in equity and bonds of *listed* infrastructure companies, such as energy, water and telecom utilities. However, social infrastructure plays only a very marginal role on the stock markets. Exceptions are a number of listed infrastructure *trusts or closed-end funds,* especially on the London and Sydney stock markets that have more or less heavy weightings in social infrastructure.[17] All main index providers offer global listed infrastructure equity indices with a range of sub-indices. Social sectors are either excluded or only play a very minor role. Some examples:

- No social infrastructure: S&P, Dow Jones Brookfield, GPR, RARE, GLIO
- With social infrastructure:
  - MSCI (healthcare facilities and education services - weighting about 2%)
  - Morningstar (health and long-term care, education - about 4%)

[17] There are eight listed infrastructure funds on the London stock exchange with different weightings in PFI/social infrastructure assets. Five of them focus on equity, one on debt and two on infrastructure shares, with an aggregate market capitalization of £11bn at the end of 2019. Another fund, John Laing Infrastructure Fund, was taken over by two UK fund managers during a difficult period in 2018 (threat of PFI nationalization, collapse of construction and service company Carillion).

- FlexShares STOXX (hospitals, postal services, correctional facilities - about 4%)
- FTSE (with speciality REITs that may include some health care properties).

### *Corporate bonds*

Infrastructure, utility and telecom companies regularly issue *corporate bonds* (fixed coupon and index-linked) that have traditionally been popular with institutional and individual investors. Infrastructure bond indices were unknown in the past except in Canada (e.g. FTSE TMX). New global infrastructure bond indices have been launched in recent years, e.g. by Dow Jones Brookfield and Markit iBOXX, although both without social sectors.

### *Project bonds*

Project bonds constitute about 10% of global project debt on average.[18] They are historically most common in North America. European project bond markets came to a near standstill during the financial crisis with the demise of "monoline" insurers and "wrapped bonds", but have recovered somewhat. Only a small fraction of project bonds are in social infrastructure, which is also reflected in rated bond universes (e.g. Moody's 2018). Some instruments have been structured for student accommodation and social housing over the last few years, and there is probably more to come in this field.

### *Municipal and local bonds*

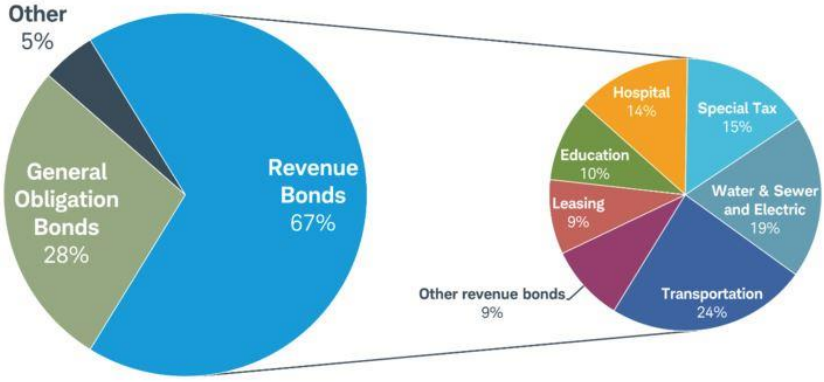
In the USA, municipal bonds are a major source of infrastructure finance, with a total market volume of over $3.8tn.[19] "Revenue bonds" are designed for special purposes, very often for streets, highways, bridges, sewers, water systems, power utilities but also for schools, hospitals, public housing, and various other public projects. Municipal bonds enjoy relatively low default rates but, interestingly, the majority of defaults in the USA have occurred in the housing and health sectors. Some US municipal bond sub-indices include social infrastructure. The S&P Municipal Bond Revenue Index, e.g., consists of bonds in the education, health care, housing, transportation, utility sectors and other sectors (Figure 6).

Many EU and UK municipalities also issue local bonds (e.g. German Kommunalobligationen), partly dedicated to the financing of (social or other) infrastructure. On an interesting side note, municipal bonds also form a substantial sector in the universe of green bonds.

[18] Project bonds are debt instruments issued by project finance companies for investment by institutional investors and other financial institutions. They are often tradable on secondary markets but can also be private placements.

[19] A municipal bond is a debt security issued by a state, city or county to finance its capital expenditures, especially for building and maintaining economic and social infrastructure. They are typically tax-exempt, making them attractive to higher-income people. There are two main types: general obligation and revenue bonds. In the latter, principal and interest are secured by revenues derived from tolls, charges or rents from the facility built with the proceeds of the bond issue.

*Figure 6: Composition of the US municipal bond market*




Source: Charles Schwab 2019 (Bloomberg Barclays Municipal Bond Index, as of 09/04/2019)

## 7.2. Infrastructure funds

The new infrastructure investment industry started with a limited choice of private equity-type funds. They were often criticized for their high leverage, high costs and poor governance. Now investors find an ever-growing number of (open and closed-ended) funds for different regions, sectors and development stages, and more specialists for infra debt.

The survey by Willis Towers Watson (2017) found roughly $400bn of infrastructure assets managed by 58 leading alternative fund managers. Infrastructure constitutes 6% of alternative assets. According to Preqin (2019), fundraising was a record $98bn in 2019. With less liquid investments, such as infrastructure, capital raised by such funds cannot be invested immediately. “Dry powder” of infrastructure funds has risen to $212bn or nearly 40% of fund volumes at the end of 2019.

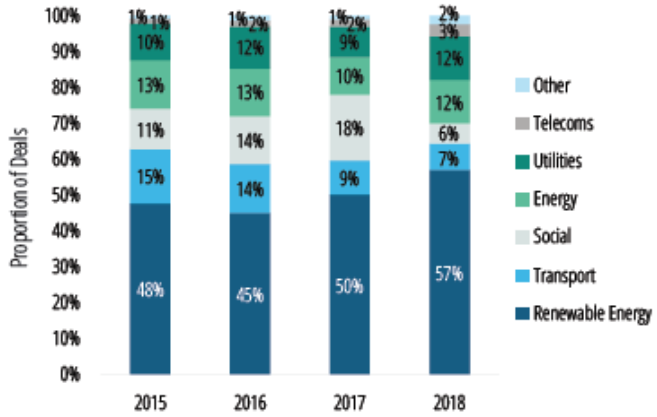
In generalist infrastructure equity and debt funds, social infrastructure is typically mixed with other sectors, while there are not many specialist products for social infrastructure on the market. Various indices for unlisted infrastructure funds and assets are in development. They mostly include social assets with rather small weightings.

For example, the MSCI Global private infrastructure index has a weighting of about 2-3% in “public facilities”, the EDHECinfra Global unlisted infrastructure equity index around 1% in social infrastructure. Indices by Cambridge Associates or Preqin are compiled from the performance of infrastructure funds with varying holdings of social infrastructure assets.

*Transaction volumes*

Preqin registered around 2500-3000 infrastructure transactions globally in recent years, with an estimated annual aggregated deal value of $800-1100bn (around 1% of global GDP). About 70% of deals are in Europe and North America. Most of the capital flows to renewable energy, followed by transport, other energy and utilities (Figure 7).

*Figure 7: Proportion of Infrastructure Deals by Primary Industry 2015 - 2018*

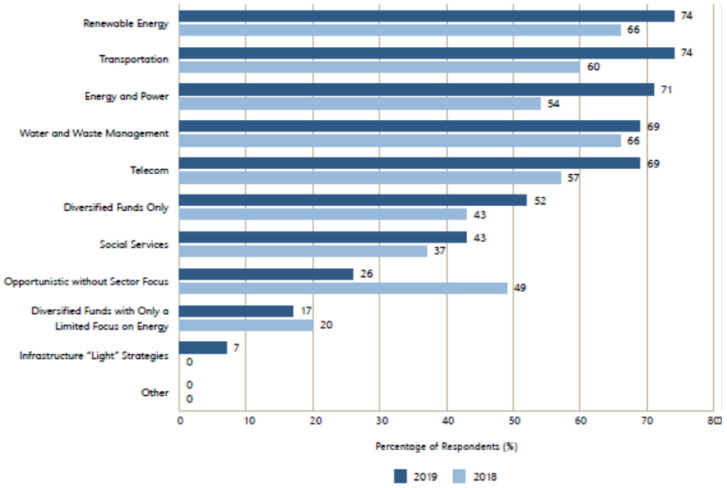



Source: Preqin (2019)

Social infrastructure captured 150-550 deals per annum since 2011 with a deal volume of about $30-60bn per annum. An average 12% of infrastructure deals are in social sectors but the share is only about 5% in terms of value. Over the last 10 years, 55% of social infrastructure deals were in education, 29% in healthcare, 13% in government, 2% in defence and 1% in other subsectors. In a regional perspective, interestingly, Asia's figures are not far off the global average (Inderst 2016).

Quite remarkably, there has been a dramatic decline in social infrastructure transactions since 2018. Funds with a preference for PPPs have gone down, too (IJInvestor 2019). This is primarily driven by Europe, in particular the abandonment the UK PFI that used to dominate this market with a share of about 80% and 60% respectively (Preqin 2015). According to surveys by Probitas (2019), the "social services" sector is traditionally of more interest to European investors but limited appeal globally (Figure 8). Some fund managers feel this could slowly be improving, markedly in the USA.

*Figure 8: Infrastructure industry sectors of interest*




Source: Probitas (2019)

*Social infrastructure / REITs*

Most "generalist" infrastructure funds invest across a broad range of sectors, often including social infrastructure. Some asset managers also invest in health or education in emerging markets, e.g. Meridiam in hospital PPPs in Turkey, Chile and Ghana. In addition, there is a small but growing list of specialist funds in different countries. Some examples:

- New Zealand: e.g. the NZ Social Infrastructure fund
- Australia: e.g. AMP Capital's Community Infrastructure Fund, Palisade's Australian Social Infrastructure Fund, Folkstone Social Infrastructure Trust
- UK: e.g. Dalmore Capital (that manages PPP assets for 5 UK large pension funds)
- Luxembourg: e.g. Franklin Templeton Social Infrastructure Fund[20]
- USA: e.g. Harrison Street's Social Infrastructure Fund L.P.[21]
- Latin America: e.g. Andean Social Infrastructure Fund.

Some investment funds specialize just on one sector, e.g. the Australian open-ended Healthcare Wholesale Property Fund by Dexus. Several real estate investment trusts (REIT) in the USA, Australia, Canada, UK etc. specialise in healthcare, affordable and social housing, and similar (e.g. Nippon Healthcare in Japan, GCP Student REIT in the UK).

*Private equity and debt funds*

Private equity has become a mainstream component of institutional portfolios. Many buyout funds invest in the social infrastructure sectors. They often include healthcare-related companies, e.g. IT, distribution services, care centres (BVCA 2013), but also the education, housing and other markets. Venture capital is well placed for higher-risk investments also in social sectors, and can be not only a financier of technical innovation but also a driver of organizational modernization.

Preqin (2018) reported rising numbers of healthcare-related deals year after year – more than 600 with a value of about $60bn in 2018 (Figure 9). This includes healthcare and senior care home operators. The bulk of deals happen in North America. The healthcare private equity industry held around $200bn in assets under management, including $56bn still seeking to be invested. China, too, has an expanding market with assets over $30bn.

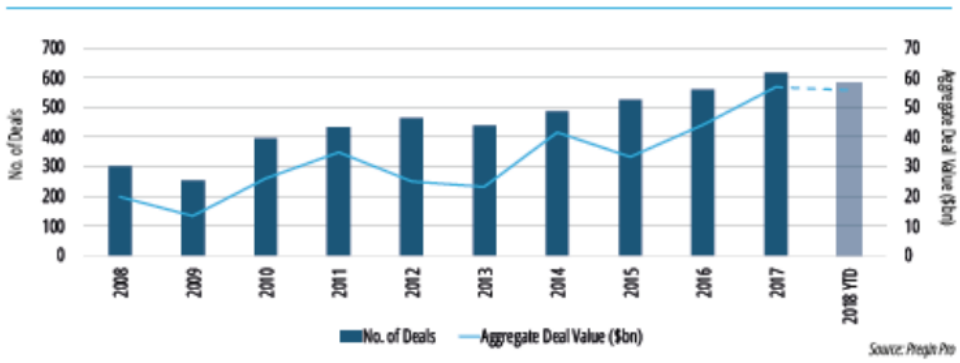
Investors appreciate the long-term, stable nature of annuity-like incomes, e.g. from care homes for old people. A survey by Octopus (2018) found about $400bn invested in

[20] This is a pan-European, open-ended investment vehicle with a broad target range of social sectors, aiming to deliver financial and social/green objectives (alignment with six SDG goals, using impact metrics with a number of key performance indicators (Franklin Templeton 2018).

[21] The open-end fund invests in infrastructure investments in the form of PPPs servicing universities, health systems and municipalities in North America. The fund invests in education (e.g. student housing) and health care buildings as well as utilities (e.g. renewable energy and water).

"healthcare infrastructure" by 100 global institutional investors. This includes retirement housing, care homes and doctor surgeries. The figures are expected to go up steeply, driven especially by demographics and the quest for long-term income.

*Figure 9: Private equity-backed buyout deals in the healthcare industry (2008–2018)*




Source: Preqin (2018)

Large private equity groups such as KKR own and run many healthcare companies in the USA. Nordic Capital, e.g., focuses on healthcare companies in their region. Duke Street Invest or Montreux Capital, e.g., invest in care homes and retirement villages. The Education Fund holds an Asian portfolio. Some private equity managers, e.g. Blackstone, have also moved into social housing, taking stakes in housing associations.

Investing in *private debt* is becoming increasingly widespread among institutional investors. Insurance companies and pension funds, but also other investors, seek a yield pickup at times of low interest rates from infrastructure loans, real estate and other private debt. There are examples of such loans also in social sectors, either via funds vehicles or direct.

The involvement of private equity firms has become an issue of some political controversy, often because of service quality and cost issues, not just ideological opposition. Concerns include the rising cost of medical services, mismanagement and intransparent corporate dealings around care centres. Privately owned prisons have also become controversial, especially when public pension funds, such as CalSTRS, are involved.

### 7.3. Direct investing and co-investing

Direct investing in private/unlisted infrastructure companies has become more popular beside indirect (fund) investments. Canadian pension funds have led this trend from the early 2000s, aiming for better control and lower costs. Larger asset owners in Europe, Australia, USA and beyond increasingly follow the "Canadian model".

The bulk of capital goes into (larger) operational assets in economic infrastructure, such as airports, energy networks or water companies. Investment syndicates are common, involving not only asset owners but also banks, contractors and industrial companies. New

(public or privately organized) co-investment platforms also allow smaller investors to overcome lack of scale. According to Preqin, 16% of direct infrastructure deals happen in social infrastructure in terms of numbers but the figure is well below 10% in terms of value.

### *Student accommodation and retirement homes*

One of the most popular types of "social" investments is currently student accommodation, especially for universities. The trend has spread from the US to Britain, Continental Europe, Australia and Asia. Residential care homes, often funded by the users and their families, are another growth area. Many social infrastructure assets are effectively "alternative" property investments, and therefore fit easily into the real estate allocations of institutional investor portfolios (e.g. Newell and Marzuki 2018).

A number of Dutch, Nordic, German, French and other pension funds are already venturing into direct investments in these market segments. Insurance companies, too, are jumping on the bandwagon. To give some examples, Pension Danmark cooperates with universities on the student accommodation. The Dutch SPF invests in educational facilities. French insurer AXA invests in healthcare buildings, student accommodation as well as data centres and other alternative real estate. Private and public pension fund investment platforms, such as the UK PiP or GLIL, hold portfolios of social infrastructure assets.

### *Social housing*

Asset owners in a number of EU countries, but not only, have made new direct and fund investments in social and affordable housing, often in their own municipality or region. For example, three British local authority pension funds (LPP, LCIV and LPFA) have joined forces to create "The London Fund" that aims to focus on infrastructure and real estate, including affordable housing and community regeneration. South Africa's GEPF has an investment programme for social housing and social infrastructure via its investment arm PIC.

Several insurance companies have raised their interest in this field, as have sovereign development funds such as the Ireland Strategic Investment Fund (ISIF) or Senegal's FONSIS. A number of real estate investment firms are launching housing funds. For example, CBRE raised £250m from institutional investors for a social/affordable housing fund (CBRE 2017).

**In summary,** the range of available investment vehicles in infrastructure – traditional and new - has grown strongly over time. Social infrastructure assets are typically mixed into more diversified infrastructure products. Several large asset owners have developed direct investing strategies, especially for real estate-like assets such as senior and student accommodation as well as affordable housing. A very limited range of investment funds dedicated to social sectors has been launched so far. Smaller investors in particular would need more well-diversified (and cheap) products or investment platforms in this field.

## 8. Sustainability, impact and SDG investing

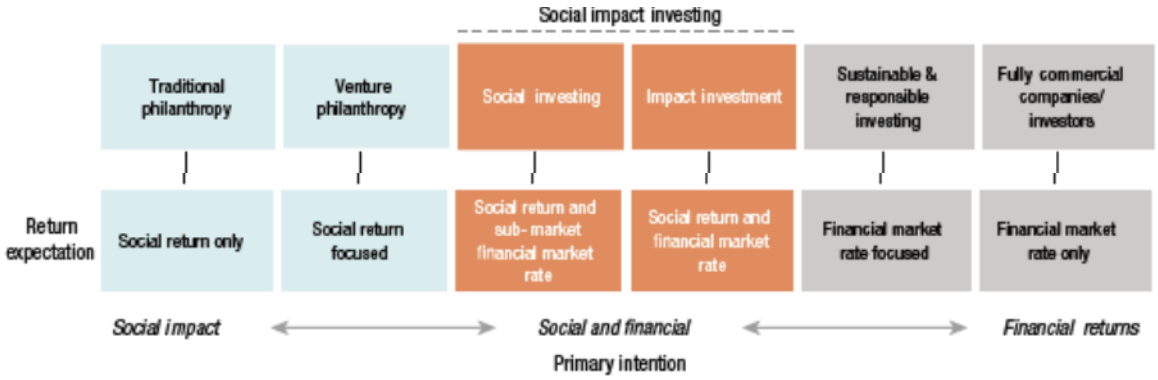
Sustainable investment is gaining traction in mainstream financial markets. Institutional investors are increasingly asked to focus also on non-financial outcomes. Overwhelmingly, this means the integration of environmental, social and governance (ESG) factors in the usual investment management process (analysis, portfolio management, reporting etc.). The primary focus is still on the financial return while managing ESG-related "risks". The "S" in ESG mostly relates to human rights, discrimination, working conditions, health & safety, diversity, local communities, consumer protection, animal welfare, and similar.

As such, this does not imply the investment in particular projects or assets. Nonetheless, sustainable and - even more so - impact investing offer a new opportunity for investors to raise their profile by seeking assets in social infrastructure.

### *Social finance, impact and SDG investing*

Social finance is usually widely defined, in a similar way to green or climate change finance. Impact investing goes beyond measuring ex post externalities of investments. "Social impact investment is the provision of finance to addressing social needs with the explicit expectation of a measurable social, as well as financial, return. A core characteristic and challenge is the measurement and management of social and environmental outcomes alongside financial returns" (OECD 2019b).[22]

*Figure 10: Traditional, sustainable, impact investing*




Source: OECD (2019b), Author

There are different approaches to balancing economic and social returns, ranging from "financial-only" via ESG investing to "impact-only" (Figure 10). Ex-ante intentionality,

[22] As a related concept, "blended finance" is the strategic use of development finance and philanthropic funds to mobilize private capital flows to emerging and frontier markets. It is a risk-sharing arrangement whereby catalytic (public or philanthropic) capital is used to shift the risk-return profile of projects, and help crowd-in commercial investors at scale.

measurability and additionality of funds ("sine qua non") are key ingredients of impact investing. It covers all asset classes, the most used instruments are private equity, private debt and real assets.[23]

Impact investing has been growing substantially over the years, as has the range of investment instruments. GIIN (2019) estimates the sizer of the impact market at about $500bn in 2018. Other figures are either smaller (if the focus on a stricter, traditional definition of impact/community investing) or larger (if counting any investment that has some sort of beneficial non-financial outcome). The newly developing *SDG investing* takes considerations beyond traditional ESG, using the 2015 UN's SDGs as a framework.

Asset owners' allocations to new-style social investments are still very small and fragmented. The OECD (2019a) survey sought information on pension funds' "social investments". Only 15 out of the total 99 funds that submitted a questionnaire reported some exposure (Table 6). With the exception of three funds, allocations are less than 1.2% of assets. They consist of social infrastructure, housing bonds and loans, social impact funds and bonds, microfinance, SME finance and other forms.

*Table 6: Social investments of large pension funds or PPRFs in 2017*

As a percentage of total investment

| Country head office | Name of the fund or institution | Total investments in 2017 (in USD m.) | Social investments (as a % of total investments) | | | |
|---|---|---|---|---|---|---|
| | | | Social/development impact venture capital/SME finance | Social impact bonds/Development impact bonds | Other social investments | Total social investments |
| Austria | VBV Pensionskasse AG | 7,879 | .. | .. | 0.3 | 0.3 |
| Argentina | Sustainability Guarantee Fund (1) | 64,655 | .. | 4.0 | .. | 4.0 |
| Brazil | Valia | 6,701 | .. | .. | 0.4 | 0.4 |
| Denmark | PFA Pension | 76,949 | 0.5 | .. | .. | 0.5 |
| France | FRR | 43,724 | .. | .. | 18.3 | 18.3 |
| Iceland | Pension Fund of Commerce | 6,366 | 0.3 | .. | .. | 0.3 |
| Netherlands | PMT | 83,377 | 0.9 | .. | .. | 0.9 |
| Netherlands | Stichting Pensioenfonds ABP | 545,201 | 0.6 | 0.3 | 2.3 | 3.2 |
| Netherlands | PME | 55,887 | 1.1 | .. | .. | 1.1 |
| New Zealand | New Zealand Superannuation Fund | 26,837 | .. | .. | 0.4 | 0.4 |
| South Africa | GEPF | 152,812 | 1.2 | .. | .. | 1.2 |
| Spain | Fonditel (2) | 3,931 | .. | .. | 1.0 | 1.0 |
| Sweden | AP2 | 42,000 | 0.1 | 0.1 | | 0.2 |
| Switzerland | Pensionskasse Post | 17,361 | .. | .. | 1.2 | 1.2 |
| United Kingdom | USS (3) | 87,060 | .. | .. | 0.5 | 0.5 |

".." means not available, or zero.

Source: OECD (2019a)

## *Social infrastructure as impact / SDG investment*

Social infrastructure facilities help governments provide essential services to the community and improve living standards. Such assets tend to have a high ESG score and can improve sustainability rankings of asset owners' and managers' portfolios. There is potential impact

[23] Common instruments: loans, mortgages, bonds and simple borrowing; equity; social bonds, social impact and charity bonds; social property and infrastructure; peer-to-peer lending, crowdfunding; investment and venture funds; social, impact and ethical funds; social stock exchanges; and others.

on several of the 17 SDGs, including good health and well-being (sustainable development goal number 3); quality education (4); clean water and sanitation (6); affordable and clean energy (7); industry, innovation, infrastructure (9); sustainable cities and communities (11); responsible consumption and production, climate action (13); and life on land (15).

To give some examples, asset manager Nuveen (2019) claims over 200 impact investments across five sectors with a volume of $1bn over 10 years, of which three social sectors (healthcare and education facilities, affordable housing), in addition to financial inclusion and resource efficiency.[24] New specialist asset managers are emerging (e.g. Big Society Capital, Bridges Ventures). In 2019, a UK Public Sector Social Impact Fund was started, including social housing and special needs schools.

## 8.1. New social investment vehicles

In recent years, new initiatives and new investment instruments have been introduced attract institutional investors' interest in social investments. Here is a (non-exhaustive) list.

### *Social bonds and sustainability bonds*

Social bonds are "thematic bonds", mirroring the idea of green bond instruments, where the proceeds will be applied to finance new and/or existing social projects (IFC 2017). They are used to fund social housing, education, health care and other projects and thereby help address social issues, especially for a target population (e.g. poor, vulnerable, unemployed, etc.). "Sustainability bonds" cover a combination of both green and social projects.[25]

The International Capital Markets Association (ICMA) coordinates the Social Bond Principles and the Sustainability Bond Guidelines, in addition to the Green Bond Principles (ICMA 2018). This market is growing fast, with issuance of over $16bn social bonds and of $42bn sustainability bonds in 2019, by international and public institutions, corporates or banks. In comparison, green bonds have since 2012 shot up to a volume of $250bn (i.e. about 2-3% of the total global bond market capitalization) (Environmental Finance 2020).

One example is bonds issues by housing associations. Asset manager Threadneedle launched a UK Social Bond fund in 2013 in partnership with Big Issue Invest, followed by a US and a European version. The funds invest across eight impact areas, including affordable housing, education, financial inclusion and infrastructure. Japan's Government Pension

[24] They use core indicators (such as affordable houses or schools built, healthcare facilities under management, client demographics) with a standardized metrics (IRIS provided by the GIIN) to measure the social, environmental, and financial performance of organizations and businesses.

[25] As a related concept, "sustainable development bonds" include a broad range of green, social, environmental, development impact, microfinance bonds and loans, charity bonds and other debt instruments (European Impact Investing 2016).

Investment Fund (GPIF) announced investment plans for social bonds issued by multilateral institutions, and earmarked for social housing, education and other projects.

### *Social impact bonds*

Social Impact Bonds (SIB) are another financing innovation for social projects. SIBs are not bonds in the traditional sense and do not offer a fixed rate of return. A social impact bond is a "pay for success" instrument, i.e. a contract between a special purpose vehicle and the government that commits to pay for improved social outcomes (and that also result in public sector savings). They can help increase community-based service infrastructure.

There are currently nearly 185 social and development impact bonds in around 30 countries, mobilizing more than $400bn upfront capital. They are used for tackling issues in areas such as youth and refugee employment support, education and housing for vulnerable people, health, criminal justice (e.g. prisoners' recidivism) and other social welfare. Several foundations, charitable trusts and pension funds (such as the Great Manchester Pension Fund, Merseyside Pension Fund) have taken an interest in SIBs, alongside other investors.

The potential social benefits of SIBs are considerable, but the transaction costs are high, and there are challenges in finding structures with incentives that are properly aligned, making rapid growth in issuance of SIBs unlikely. SIBs are typically small-scale and low capital-intensive, as they focus on service rather than infrastructure provision.

There may be ways of combining the virtues of project finance and "pay for success" to enhance results. The idea of "social impact project finance" is a form of performance-based availability payments, including a "social impact yield" for improved services and other impact (Lu et al. 2015). Also, outcome-based criteria could be linked to PPPs via a SIB model to improve effectiveness in social infrastructure (Vecchi and Casalini 2019).

### *Social Stock Exchanges*

Social stock exchanges offer a public market for environmental and social impact businesses. They are known (or dicussed) in places like Canada, the UK, South Africa, Singapore, Kenya, India and other countries (Wendt 2017). In 2017, the Luxembourg Green Exchange (LGX) introduced a new segment dedicated to social and sustainable bonds.

**Summing up,** sustainable and impact investing are gaining traction, providing new opportunities. New social investment managers and instruments are emerging as institutional investors are trying to raise their ESG and SDG profiles. Social bonds, e.g., can help finance "hard" infrastructure in social housing and other needs. Outcome-based, "pay for success" arrangements could be used more widely in future. Many investors express – in principle - growing demand for impact/community assets that are difficult to scale up. It could, at least partly, be matched by a sizeable supply of suitable social (infrastructure) assets and projects.

## 9. Summary of findings

Investment in social infrastructure is - evidently - important to the economy and society more widely. Surprisingly little is known about "the hardware" of social infrastructure, how it is financed and even less so about future investment needs. Definitions of social infrastructure vary widely in policy, academia and finance. In practice, investor universes tend to go well beyond the core sectors of health, education and social housing.

From the fragmentary evidence available in various regions, current investment in social infrastructure is estimated at about 0.4-0.6% of GDP in the health and education sectors combined. Substantially more will be needed in future – in both developed and developing countries - but estimates of investment gaps vary widely between 0.3% and 1.5% of GDP.

The public sector tends to be the dominant financing source in social infrastructure, especially in education. Notably, the corporate sector undertakes significant investment in the health sector in some developed countries. Various PPP arrangements have been established across the world since the 1990s. However, the overall contribution of social infrastructure PPPs is tiny (less than 0.1% of global GDP). In fact, investment volumes in social infrastructure project finance and PPPs have even fallen back again in recent years.

Institutional investors have become increasingly active since the financial crisis 2007/08, raising investment volumes in private/unlisted infrastructure to about $600bn globally. This is still only around 1-2% of institutional portfolios worldwide. Economic infrastructure dominates while only small fraction that (e.g. 4% for large pension funds) goes into social sectors. Lack of investable projects remains a core challenge, particularly so in social sectors.

The investment characteristics of social infrastructure assets are potentially attractive, such as non-cyclical demand, steady income and low correlation to other asset classes. However, they can also be small and fiddly, very heterogeneous with outputs difficult to measure, and subject to political and renegotiation risks. This requires good management and governance.

Social infrastructure investments are typically mixed into the growing supply of diversified infrastructure products. Several large asset owners have developed direct investing strategies, especially for real estate-like assets with stable yields such as senior/student accommodation or affordable housing. A very limited range of investment funds dedicated to social sectors has been launched so far. Smaller investors in particular would need more well-diversified (and cheap) products or investment platforms in this field.

Sustainable and impact investing are gaining traction, opening a new door. New social investment managers and instruments are emerging as institutional investors are trying to raise their ESG and SDG profiles. Many investors express – in principle - growing demand for impact/community assets that are difficult to scale up. It could, at least partly, be matched by a sizeable supply of suitable social (infrastructure) assets and projects.

## 10. Conclusions and recommendations

Governments worldwide are introducing new infrastructure policy programmes and institutions. Their focus is primarily, if not exclusively, on economic infrastructure. The rising "wall of money", especially from institutional investors, too, is mainly targeted to assets in transport, energy and communication.

The picture looks much less rosy for social infrastructure, where chronic underinvestment has remained a common feature in most - developed and developing - countries. The widespread neglect is both on the side of governments and private sector investors – with some exceptions. This raises questions: what is different with assets in health, care, education, housing, security, emergency, recreation etc., and why, and what can be done.

### *General lessons for policy makers and investors*

Some lessons have been learnt over the years about infrastructure investment and private finance, so it is worth starting from there. The general policy recommendations for catalyzing institutional capital have been well rehearsed by international organizations. Many of those can be applied also to social infrastructure (Felli et al. 2014, Inderst 2017):

1. Consistent infrastructure policies with a clear, stable regulatory framework and good public governance are essential for "quality infrastructure" (a G20 concept) (G20 2019).
2. No retrospective changes of rules and regulations; especially PPPs require time and a high degree of trust to succeed.
3. Strengthen the public sector capabilities not only in central government but also at the important sub-national levels (where it is most needed, especially in social sectors).
4. National infrastructure plans to include also social infrastructure, or set out separately.
5. Enlarge and enhance the pipeline of investable (social) infrastructure projects.
6. Consider "asset recycling" (i.e. privatization of operational assets, using proceeds for new, initially more risky or "difficult" social facilities). "Value capture" is one mechanism for the public sector to regain some of the indirect benefits of projects.[26]
7. Creation of a public-private EU fund for social infrastructure, and recommendations for wider regional support policies (e.g. Fransen et al. 2017, Social Services Europe 2018).

The infrastructure and financial industries, too, can enhance their practices in various ways:

1. Adequate governance and clear accountability in both private and public sector. Health, education, care, prisons etc. are, of course, particularly sensitive areas.

[26] A project can generate value directly (e.g., ability to charge usage fees) and indirectly (e.g., land value increases in adjacent areas). Some (local) governments have started to capture a portion of this "unearned value" to help fund and finance current or future projects (Deloitte 2019).

2. Improve transparency and disclosure on infrastructure projects, companies and investments, including on ESG and environmental/climate/social impact.
3. Start more cross-border, regional investment activities in social infrastructure. Combine local sector knowledge and standards with foreign investor experience and discipline.
4. Better data availability, transparency and quality would be a public good in itself - much room for improvement for both public and private data services providers. Academia could finally see the opportunity given by the big research gaps in (social) infrastructure.

### *Conclusions for social infrastructure investment*

This multi-sectoral, global analysis of financing and investment of "hard" social infrastructure leads to several key conclusions.[27]

First, it is clear that the public sector will remain the dominant funding and financing source in social services. However, not all "hard" social infrastructure needs be paid by the taxpayers. Some can, at least in part, be cross-subsidized by connected services, e.g. shops, restaurants, entertainment, mixing commercial and social homes, etc.

Second, facilities in health, education, housing and other sectors are rather varied in many respects. They are typically very "local" and subject to different laws and customs across countries, regions and municipalities. Government (at different levels), with the infrastructure and financial industry, need to work out better what specifically can best be funded by users, and what not. Clarity in funding facilitates financing and investing.

Third, much more financing could – in principle - be provided by the private sector for certain segments to alleviate state budgets. The degree of "financialization" of social infrastructure is a matter of open political choice, and not just a matter to be negotiated between public officers and bankers. Infrastructure plans need to be embedded in a grand social policy vision and framework, using not only financial but also social services experts. Whatever the ideology, a certain long-term consensus across political parties would help.

Fourth, the global experience so far shows that matching private capital investors' expectations with the available assets and projects in social sectors is a bigger challenge than previously thought in advanced countries, even more so in emerging markets. Many policy initiatives to mobilize more private capital have not been very effective.

Fifth, it has to be accepted that institutional investors will be mostly interested in "lower hanging fruit" that fit into their financial objectives and constraints. The easier it is for them to capture attractive returns and to assess the associated risks, the more likely they will get

[27] Some lessons may well apply also to "soft" social services, which face even bigger challenges, but are not the subject of this paper.

involved. The investor universe is very diverse, using many different investment strategies, so there is space for all sorts of - more or less risky – social assets.

Sixth, it is not a question of finding the "holy grail" of e.g. a mythical "innovative" financing tool. A more promising approach is to look at what underlying funding arrangement has worked successfully in the past, at least in some places.

In infrastructure investment in general, this is the case especially for a) regulated utilities in economic infrastructure, b) for unregulated businesses with a consumer-driven revenue stream (this also in certain areas of the health and other social sectors), c) for well-funded project finance deals, d) for municipal bonds and e) for assets with reasonably predictable long-term cash flows (e.g. in renewable energy).

Given the size of and urgency of investment needs, it would make sense to with work with the full spectrum investment vehicles. Sustainability, impact and SDG investing open new opportunities for governments, investors and the infrastructure industry. In social infrastructure, there are various investment strategies and instruments that can realistically be improved, scaled-up and expanded, in particular:

- real estate-like social infrastructure with steady expected income from users or hybrid fees, like student accommodation, care homes, affordable housing, urban regeneration
- PPPs/concessions for schools, hospitals etc. with availability payments from trustworthy public authorities
- equities and bonds of listed companies in infrastructure development and services
- private equity and debt for businesses in the health, education, recreation and other social sectors; venture capital for innovative companies
- municipal bonds or other dedicated sub-government instruments
- social or sustainability bonds, targeted to social assets
- impact and community investments, via funds or direct by asset owners, into social housing, social projects etc.
- cost-efficient bundled social investment vehicles for smaller, less-resourced investors
- "blended investments" in more "difficult" social infrastructure for co-investment with private sector investors (e.g. via some form of state guarantee).

Most countries of the world are facing the coronavirus crisis 2020 with a poor social infrastructure in secular stagnation. Investment needs and gaps were already huge before. One of the outcomes of the last global (financial) crisis 2007/08 was a (slow) revival of economic infrastructure policies, and a growing involvement of institutional investors. Will the next decade see a renaissance of – public and private - social infrastructure investment?

□

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