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Social Infrastructure Finance and Institutional Investors

A Global Perspective

Georg Inderst

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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. The financial crisis 2007/08 led to a slow revival of *economic* infrastructure policies, and a growing involvement of institutional investors. In contrast, private sector investment in *social* infrastructure has widely fallen back over the last decade. Will the next decade see a renaissance of – public and private - social infrastructure investment?

This is the first systematic account of social infrastructure investment from an international perspective, leading to several key conclusions for policy makers and investors. The public sector will remain the dominant source for funding and financing. Nonetheless, much more private capital could flow with greater clarity on social assets, given their very diverse characteristics across sectors and projects. Several investment strategies 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

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1. Introduction

After a long period of decay and neglect, policy makers in many countries are rediscovering the significance of good infrastructure for economic and social progress. Post financial crisis 2007-2008, the intensifying debates focused mostly on *economic* infrastructure, especially the energy and transport sectors. In contrast, investment in *social* infrastructure has received little attention from both politicians and investors, at least before the coronavirus crisis 2020, despite growing concerns in the public.

Investing in infrastructure has become increasingly popular with institutional investors since the mid-2000s. The bulk of the private capital flows into transport assets, energy networks and water utilities, and increasingly into renewable energy. Infrastructure funds often do include assets in health, education and public buildings but the scale is very limited. Rather worryingly, private sector investment has been falling back again in many social segments in recent years – this against the general infrastructure 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 and developments from the fragmented evidence available.

This study is the first 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, important conclusions and recommendations for both policy makers and investors are presented.¹

2. Definition and relevance of social infrastructure

In the investment practice, definitions of “infrastructure” center on basic physical structures and “hard” public assets that provide essential services to society. A common distinction is between economic and social infrastructure. The former covers primarily the sectors of transport (such as airports, ports or toll roads), energy, water and waste, telecommunications and digital networks. Another distinction often made is between

¹ This paper builds on earlier analysis of social infrastructure investment (Inderst 2015) and the expert paper (Inderst 2017a) 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) (Fransen et al. 2018). The main focus here is on private finance and investment vehicles for institutional investors in a global view.

“physical” and “non-physical infrastructure”. Traditionally, the focus is on “hard” social infrastructure (and related contracts and operations). However, non-physical infrastructure investment is growing in importance as investors detect the “essentiality” of digital infrastructure for businesses and private life. Definitions are shifting.

There are also other concepts of social infrastructure that cover “soft” factors and “intangible” institutions (e.g. Casey 2005, Felli et al. 2014, Lipparini et al. 2015, ITUC 2016). As an example, CPP (2020) defines social infrastructure more widely as “systems which enable society to work efficiently ... These can include physical capital, human capital, social capital and public services.” Important to note that “hard” infrastructures constitute only a small portion of the total costs in producing social services (Social Services Europe 2018).

Social infrastructure sectors

Definitions of social infrastructure vary considerably across investors, and so does the range of subsectors. The investment 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 include public buildings and culture/entertainment facilities. In practice, fund managers expand the investment universe even further into “alternative real estate” and other community-related services (Box 1).

Box 1: Social infrastructure sectors for investors

1. Health and social care: hospitals, other medical facilities, care homes for the elderly, assisted living, emergency services, disaster and catastrophe management
2. Education: schools, universities, kindergartens, training places
3. Housing: social and affordable homes, 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 halls and convention centres
 - sport stadiums, swimming pools, music halls and other entertainment structures
 - public parks, playgrounds, other communal green spaces, public art works
7. Other “alternative real estate”: e.g. car parks, logistics, storage and data centres
8. Other community-related services: local transport, bus stations, crematoria, water and wastewater, connected district utilities and renewable energy, urban development, etc.

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 monopolistic element. However, many social infrastructure 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) 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.

c) The debate is open on the meaning of “essential” infrastructure. What is “essential” social infrastructure, e.g. in recreation? 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 of how far the “infrastructure” term can opportunistically be stretched.²

d) As a final caveat, the distinction of “physical” and “non-physical” infrastructure has become increasingly blurred. Digitalization and other technological change do not stop short of social sectors. “Smart infrastructure” combines physical infrastructure with digital capacity, e.g. for “health tech”, digital education, housing or “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 definition of a “civic operating system”, covering 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, restaurants and street food/markets (Klinenberg 2018, Latham and Layton 2019). So do “the environment and buildings for social and market activities”, including retail, industrial and science parks, and other market places (LGA 2019).

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.

Economic and social impact

The impact of infrastructure investment on economic growth and development 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, Väililä 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. On the other hand, some researchers find comparatively strong longer-term effects of social infrastructure spending on productivity (e.g. CPP 2020) or employment (e.g. De Henau and Himmelweit 2020).

Good facilities for education, health, security etc. are essential for all political systems. Social scientists are stressing the links to human and social capital formation (e.g. Roskrugge et al. 2010), inequality and poverty, wellbeing and happiness, diverse and sustainable communities, 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 for the substantial contribution to the economy and society more widely.³

Summing up, the relevance of social infrastructure for the economy and society is 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, spanning widely over eight areas. 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 investment requirements for the future? How is it financed, and what role does the private sector play? A first point of reference 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

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)

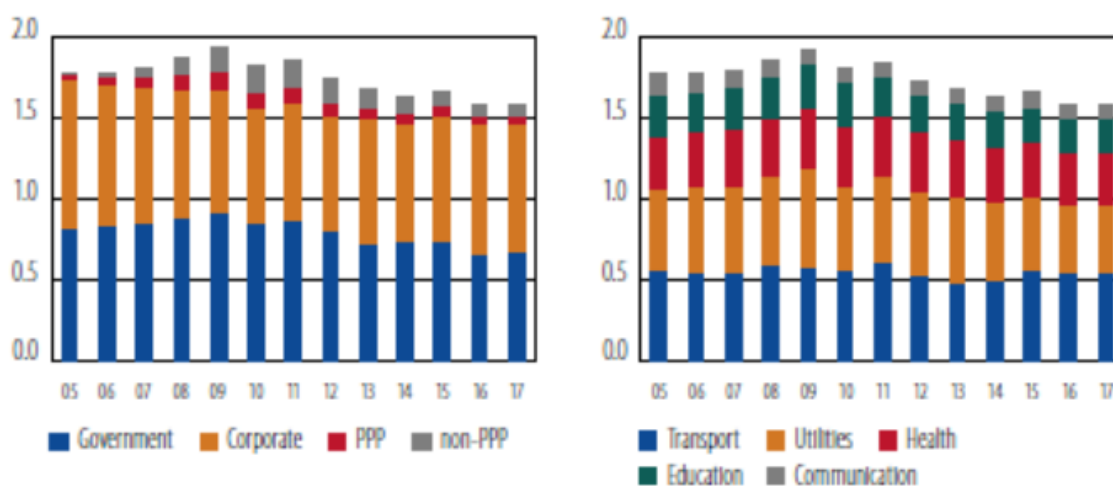
providers. It needs to be said that data accessibility, transparency and quality remain poor in this field. Many service providers only cover economic sectors. Better statistics are required not only from governments but also from the financial and infrastructure industry.

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 infrastructure sectors. PwC (2015) used a wider range of sectors in the national accounts. According to their analysis, 15% of global infrastructure spending was in health and education in 2012, i.e. about \$600bn. 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).

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 is excluded.

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% in health and 0.3% in 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).⁴

⁴ 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

There are major differences in the financing source of the two social sectors. Public sector finance dominates education while health is more balanced between public and private sources. Corporate infrastructure 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 as main drivers. 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? Not too much. Demographic factors and chronic illnesses will put even more pressure on care and health spending. Expectations on education, leisure other social infrastructure keep rising with economic and social development. 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. Early examples for different regions give an idea for the order of magnitude of the problem.

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 1).⁵ 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

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 “infrastructure” investments compared to earlier statistics of total GFCF somewhat. However, it may miss out on some investment activity, especially in the social sectors.

⁵ \$ refers to US\$, € to Euros, £ to Pound Sterling C\$ to Canadian Dollar A\$ to Australian Dollar.

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 1: 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 2 include 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).

Table 2: Investment in social infrastructure in the EU

(annual)	Current investment		Investment gap	
	€ 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, using a “top down” approach. This would correspond to a combined investment gap in these two sectors of about 0.3% of GDP (the gap is defined as the difference between a “business-as-usual scenario” and a “policy” or “maximizing benefit” scenario). 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.

USA

The American Society of Civil Engineers (ASCE 2017) estimated that the United States had an unfunded infrastructure gap of more than \$2 trillion over the years 2016-2025, equal to annual gap of about 1% of GDP. These figures include two social infrastructure sectors:

schools with an annual gap of \$38bn (0.2% of GDP), and public parks & recreation with an annual gap of \$10bn (0.05% of GDP). Unfortunately, no other social sectors are included.

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 3). The annual cost of sustaining the existing stock of social infrastructure is a high value of about 1.5% of GDP. Current spending (in 2016) is about 0.6% of GDP, leaving a substantial “investment gap”. The estimated demand is several times higher than current investment, especially so for health and education facilities.

Table 3: Social infrastructure demand in Japan, 2016-2030

	<i>Current spending</i>	<i>Future demand</i>
(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). Costs for O&M and replacement will be substantial in the coming decades.
- “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)

Indonesia and developing Asia

Another detailed study is available for Indonesia (LPEM-FEBUI and JICA 2018), using a similar approach to Ishizuka et al. (2019). Over the 15 years to 2030, Indonesia needs nearly \$50bn a year to fulfil its social infrastructure demand. This number is equivalent to about 3.8% of Indonesia’s projected GDP, almost equally split between new investment and maintenance cost. The analysis covers four sub-sectors. Housing for the poorest 20% of households

requires the highest investment (1.4-1.5% of GDP), followed by education (1.2-1.3%), health (0.9-1%) and government buildings (0.2-0.3%).

According to this study, social infrastructure needs amount to about two thirds of the economic infrastructure needs projected by ADB (2017) for Indonesia. Current spending on social infrastructure is much lower. As an indication, government spending is estimated 0.33% of GDP on new social infrastructure investment (excluding government buildings, and O&M spending). This leaves a massive financing gap. “Possible private involvement in infrastructure provisions for education, health, and public housing is welcomed.” (p. 55)

Looking at developing Asia as a whole, ADB (2017) estimated a financing gap of \$459bn per year, or about 2.4% of GDP, for economic infrastructure 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.⁷

Other developing countries

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 was catalyzed for infrastructure, of which 15% went into social projects (MDB 2018). In a different analysis, Attridge and Gouett (2020) found that Development Finance Institutions (DFI) invested only about \$3.5bn in healthcare infrastructure between 2013 and 2018, with a significant concentration in Turkey (large hospitals) and India, but very little in low income countries.

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). For health and education, aggregate investment needs of \$540bn (1.6% of GDP) exceed the \$150bn (0.4% of GDP) “business-as-usual” (BAU) investment, leaving a gap of \$390bn (1.2% of GDP)

⁷ 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)

(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 further notes that current investment trends are positive in the health sector but negative in the education sector.

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

\$ bn	Capital investment (annual)			
	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 for different countries and regions 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 but less so in health. Notably, the corporate sector undertakes significant investment in the health and care sectors in several 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.⁸ Within project finance, one can distinguish between *PPP* and *non-PPP* arrangements. PPPs have become a

⁸ 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).

policy option as an alternative to public procurement of infrastructure.⁹ The UK, Australia and Canada were early adopters of PPPs; many other countries followed. While Europe still has the largest share of projects, 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. 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 admission fees and or utilization charges) or taxpayers (via state “availability payments”), or a hybrid/combination of both.

Global project finance and infrastructure deals

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 overall global infrastructure finance transactions of about \$1tn. They include deals and refinancing for hospitals, 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.

RICS (2020) compared private investment in infrastructure in six countries, using a different database by Preqin. Over the period 2007-2019, the UK (about 31%), USA (19%) and Canada (14%) have a relatively high proportion of infrastructure deals in social sectors. In contrast, the Asian countries China (0.2%), India (3%) and Singapore (5%) show much lower figures. Annual volumes are rather volatile, partly due to changing government support policies.

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

⁹ 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.

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 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, typically linked to performance criteria. Various contract types and payment systems exist. Every country and sector has its own ways of “bundling” together multiple project phases or functions, facility development or services (e.g. Wright et al. 2020). 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 €28bn. Volumes have been trending down since, reaching a level of about €10bn from 29 transactions in 2019, i.e. less than 0.1% of GDP (EPEC 2020). Over the full reporting period 1990-2019, EPEC registered around 1800 projects with a total volume of €368bn (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 (37%). Social infrastructure projects tend to be much smaller than economic infrastructure projects (i.e. value of about €.110m compared to €.430m).

Table 5: EU PPP projects in social infrastructure sectors, 1990-2019

1990-2019	Projects			average	
	number	% value	€bn	% value	(€m)
Education	434	24%	35	10%	81
Healthcare	387	22%	50	14%	129
Public order and safety	144	8%	12	3%	83
Defence	56	3%	18	5%	327
General public services	75	4%	7	2%	97
Housing and community services	83	5%	7	2%	89
Recreation and culture	79	4%	7	2%	85
Total 7 social sectors	1258	70%	137	37%	109
All PPPs	1799	100%	368	100%	205

Source: EPEC Data Portal (July 2019); Author’s calculations

Looking at more recent trends, PPPs are now somewhat more evenly spread across countries than in the past.¹⁰ 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

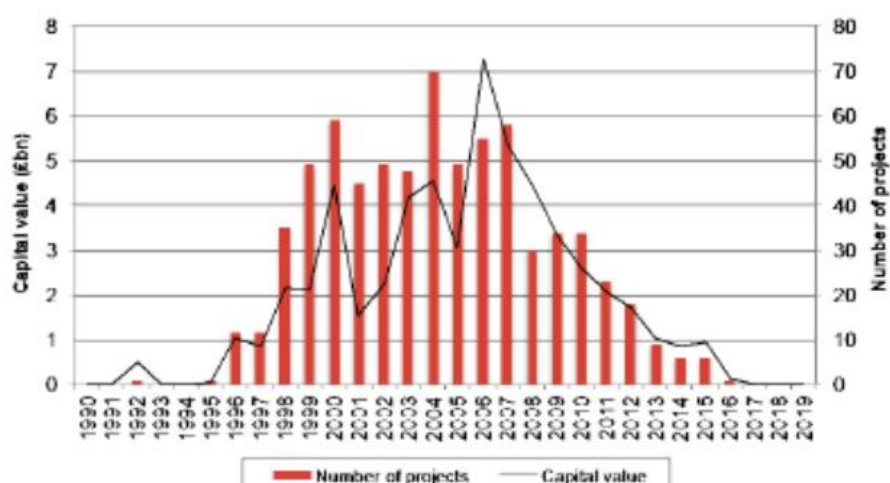
¹⁰ Over the last 5 years (2015-2019), Turkey moved into first place with a volume of around €22bn, followed by the UK (€12bn), France (€12bn), Netherlands (€6bn), Germany (€4bn) and Italy (€3bn). The UK used to account for roughly half of EU PPPs volumes but its share has declined substantially.

(especially larger economic) PPP projects. Critically, the value of all PPP investments in social infrastructure has retreated to roughly €4bn per year. The shift from social to economic infrastructure in recent years 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, mostly in transport or defence (The CityUK 2014).

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.¹¹ A modified approach introduced

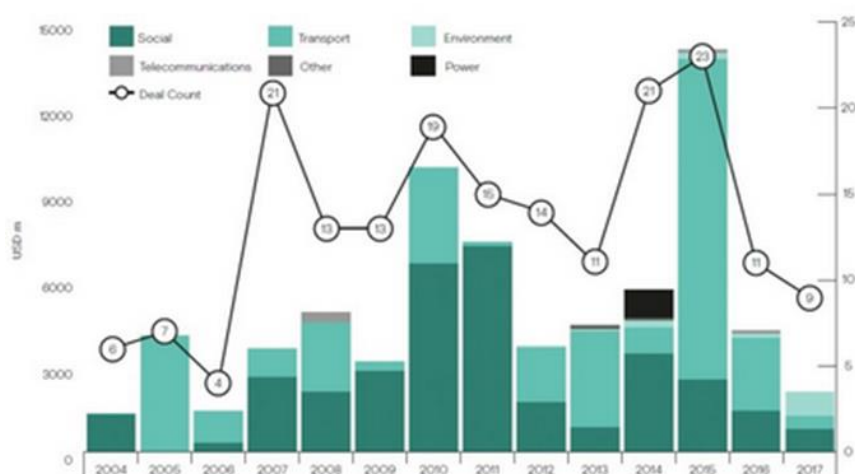
¹¹ Critics disliked PFI, and PPPs in general, for all sorts of reasons, ranging from the technical to the ideological: too expensive, too opaque, too slow and too inflexible. The private sector could make windfall gains while the risk transfer and potential future liabilities for the public sector were unclear. “Value for money” for the taxpayers was questionable (NAO 2018). In contrast, a survey among service providers in Australia and New Zealand highlighted the benefits of PPPs compared to traditional procurement of social infrastructure (Infrastructure Partnerships Australia 2020a). 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.

in 2012 - called PF2 - had no success. In 2018, the UK 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 (utilities) 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 with a market value of C\$139bn were active 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 portion is financed via capital markets in Canada, especially private placements to pension funds and insurers.

Other markets

There are some more markets with a considerable PPP activity. Figures by Infrastructure Partnerships Australia (2020b) 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.

Taking a sectoral perspective, Le et al. (2020) make an estimate of currently more than 1,000 health PPPs worldwide. There are widespread calls for a much wider use of social PPPs. Many countries like Vietnam or Moldova are trying to expand the use of PPPs in health, care, education etc. However, big numbers are difficult to achieve given the theoretical and practical difficulties of complex, and often expensive, PPP arrangements. A notorious example is the flagship PPP hospital in Lesotho (Hellowell 2019).

Summarizing, various PPP arrangements have been established in social sectors in Europe, Canada, Australia and other countries since the 1990/2000s. 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 institutional investment trends have been 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 investing; sustainable, responsible, socially responsible (SRI); environmental, social and governance investing (ESG); green/ecological, social, 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 2010). The main 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, investor 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 (2020) 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 have followed since. According to surveys, many investors intend to increase allocations further going forward.

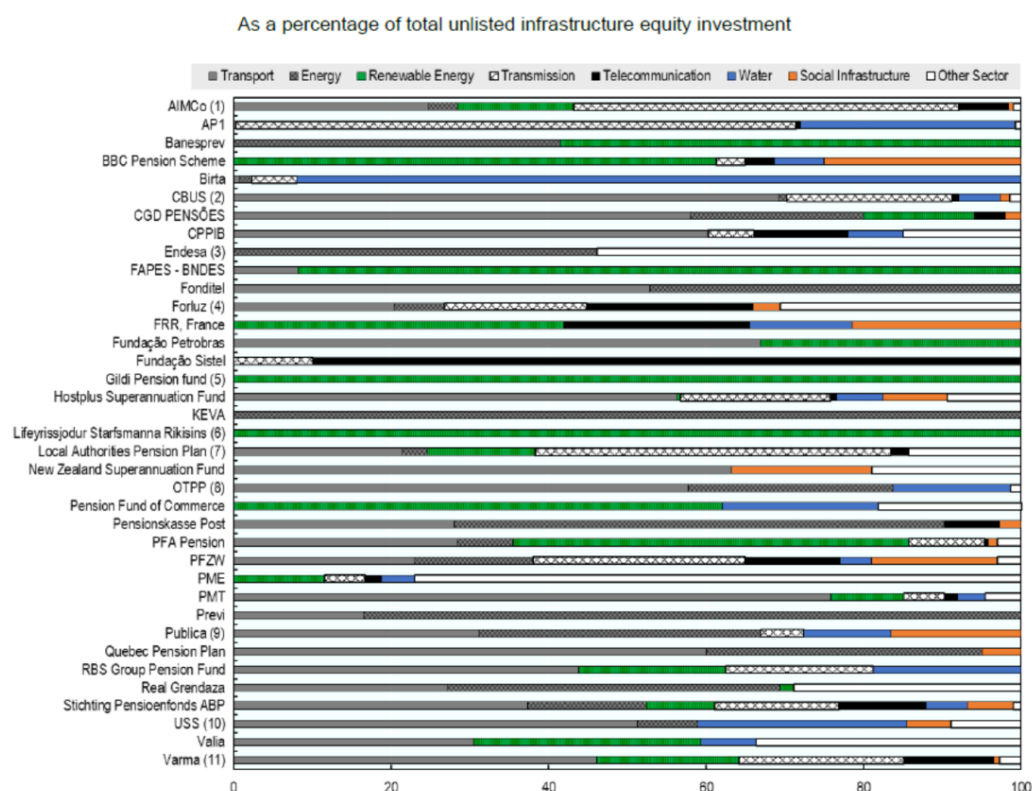
Overall, institutional investors' asset allocation to unlisted/private infrastructure is still low, as one can deduct from the pieces of evidence available. In the Preqin universe, the median asset allocation to infrastructure by the reporting investors is around 2% for pension funds, around 1.5% for insurance companies and foundations, and about 5% for SWFs (it is worth noting that non-reporting funds often hold no or few such investments).

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 input 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 the reporting funds but only 1.3% of assets of the full universe of funds. Allocations well above average of 8-10% were achieved 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. A small number of investors have sizeable holdings in social infrastructure although the overall weighting of that sector is only 4% within the total infrastructure allocation of pension funds.¹²

¹² Funds with sizeable weightings of social infrastructure include the Dutch PFZW, NZ Superannuation, French FRR, UK BBC scheme and Swiss Publica. Earlier OECD surveys found also other funds, e.g., the Quebec Pension Plan, Argentina's Sustainability Guarantee Fund, Peru's Previ, South Africa's GEPP and Canada's OMERS.

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



Source: OECD (2019a)

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, conflicts of interest) (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, sectoral constraints need to be worked on, e.g. relating to energy, health or housing sector regulation.

Investor constraints

Many *pension plans* work under “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.¹³ European

¹³ Alonso et al. (2016) constructed an “Index of regulatory liberalization for the investment of pension funds in infrastructure”. According to this, among larger markets, Canada, the Netherlands, Belgium and Ireland share rank 1, followed by Australia, UK and the Nordics. USA, Germany, Italy, France, Spain and Switzerland are in the mid-field. Emerging markets tend to score lower.

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.

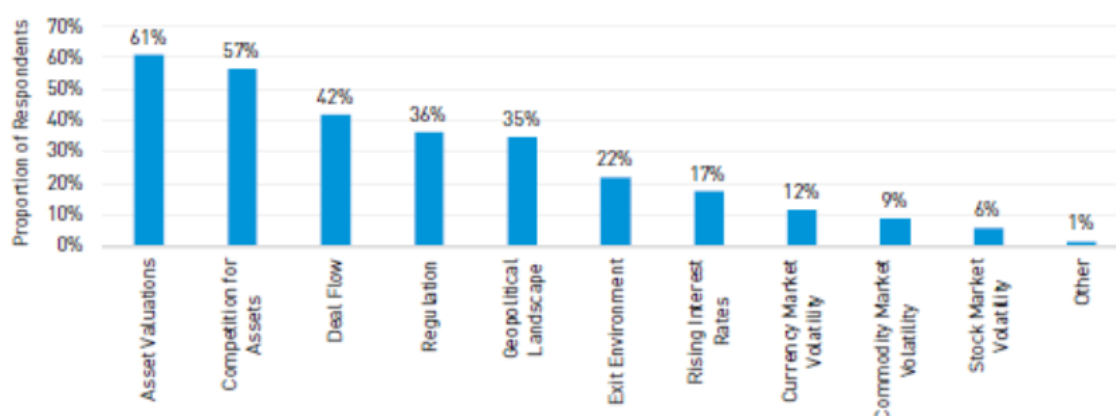
Insurance companies have solvency rules to respect. Traditionally, they hardly had any investments in unlisted infrastructure assets but many have lately become more active. They, too, have a strong preference for lower risk assets, especially investment grade infrastructure debt. The European Insurance and Occupational Pensions Authority (EIOPA) softened the rules in Solvency II for certain categories of “lower risk” infrastructure assets (listed and unlisted equity, project and corporate debt) 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. With tightening banking regulation post financial crisis (Basel III), bank loans have been partly substituted by direct private loans from non-bank institutions. However, many *commercial banks* have gradually returned to the booming infrastructure market with longer-term lending and other services.

Challenges and risks

In recent years, a key challenge perceived by infrastructure investors was the insufficient pipeline of projects that lead 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)
- other support by national or multilateral development banks (e.g. loans, funds, advice)
- currency risk protection, political risk insurance (e.g. MIGA, World Bank Group)
- new national infrastructure institutions (e.g. PPP units, green banks) or international development institutions (e.g. AIIB, NDB).

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 European Court of Auditors (ECA 2019) questioned the extent of mobilised additional investment and the calculation methodology.

The follow-on InvestEU programme should streamline EU support and is expected to mobilize at least €650bn in additional investment between 2021 and 2027.¹⁴ 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).¹⁵ The EU Recovery Plans 2020 include funds for digital, green, social and other infrastructure.

Overall, investing in infrastructure has become increasingly popular with institutional investors, not the least spurred by continued low interest rates. Investment volumes in private/unlisted infrastructure have risen 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 - only a small fraction goes into social sectors

¹⁴ 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.

¹⁵ 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.

(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 characteristics 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 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 the more “commercial” areas of social infrastructure, the specific demand and revenue risks need to be carefully assessed.

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 may be highly leveraged which can be yield surprises in difficult times. In the investment practice, many investors use the layers of “core, core-plus, value added, opportunistic” assets. The concept is borrowed from real estate appears, and definitions appear even more fuzzy and fluid in infrastructure.

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. The financial crisis 2007/08 had produced some negative surprises, especially where demand expectations were too high, combined with excessive financial leverage. 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 2020 recession provides a broad resilience test – this also for social care, education and recreation assets.

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, or even other infrastructure sectors. Concentration risk tends to be lower than in portfolios that contain only a few large economic infrastructure assets.

Heterogeneity and locality

Social infrastructure investments are not homogeneous. Facilities in health, education, judiciary, security, culture or recreation: they all serve different human and social needs, with very different users, business profiles and contract partners. They are typically very “local” and subject to very different laws and customs across countries, regions and municipalities (CEB 2017). Box 3 provides an investor perspective on healthcare.

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 more responsible, active, long-term ownership. Active, customer-centric management focusing on patient outcomes and quality is paramount.

Liquidity

Long-term investments are often hindered by investors’ liquidity concerns, especially for defined contribution (DC) pensions. However, many social infrastructure assets are effectively real estate, and could be converted to other uses if needed. They tend to exhibit a lower degree of “asset specificity” than economic infrastructure assets (Välilä 2020b).

Operational issues and reputational risk

Poor service quality and inefficiencies seem to be notorious in these sectors. Poor operating companies constitute a “reputational risk” also for the investor. Measuring outputs, outcomes, performance and impact is particularly difficult in social infrastructure (SDA Bocconi 2018). Key performance indicators (KPI) are not easy to set when contracts include services in addition to buildings. Budget predictability can be low. Therefore, good governance and management are paramount (e.g. Durán and Saltman 2015).

Innovations and technology risk

Technological change is also affecting assets in health, education, housing and culture. The rise of digitization, medical diagnostics and digital learning has been boosted by the coronavirus crisis with strong repercussion on traditional “hard” social infrastructure. Contracts may need to be adjusted to changing market conditions. Innovation also works in other ways, e.g. by expanding “independent living” spaces or by giving students incentives to mix with elderly people (as introduced in the Netherlands).

Regulatory, political and social risk

Political risk is inherent in infrastructure investment, even more when cash flows come from availability payments. National policies can change. Hospitals, schools, kindergartens etc. are typically heavily regulated with frequent adjustments. Re-regulation is likely in this field, and feared by investors (e.g. Blanc-Brude 2012). Contract renegotiations are a difficult territory in theory and practice (Engel et al. 2020). There is also “social risk” when a project is opposed by pressure groups or the media. Recent examples are public opposition to private equity/infrastructure funds’ involvement in prisons, hospitals and care centers.

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. 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.

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. Technological change has a growing impact also on “hard” social infrastructure. 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 and municipal bonds have been well-established investment instruments in infrastructure for a long time – although often overlooked, especially in the social infrastructure 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* with exposure to social infrastructure, especially on the London and Sydney stock markets.¹⁶

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:

- Excluding social infrastructure: S&P, Dow Jones Brookfield, GPR, RARE, GLIO
- Including social infrastructure:
 - MSCI: healthcare facilities and education services - weighting about 2%
 - Morningstar: health and long-term care, education - about 4%
 - FlexShares STOXX: hospitals, postal services, correctional facilities - about 4%
 - FTSE: with speciality REITs that may include some health care properties.

Real estate investment trusts (REITs)

A particular type of publicly traded investment is a real estate investment trusts (REIT). Established in the USA in 1960, they are companies that own, operate or finance income-generating real estate. Healthcare REITs are a small subsector, with a weighting of ca 5% in the MSCI World Real Estate Index. In the UK, REITs accounted for over half of the £1.5bn healthcare property transactions, dominated by elderly care and supported living housing.

Newell and Marzuki (2018a) counted 35 healthcare and life sciences property REITs in nine countries (USA, Canada, Japan, Australia, New Zealand, Malaysia, Singapore, Canada, UK, France), including Nippon Healthcare, US Welltower and Canadian NorthWest Healthcare Properties. Other REITs specialise in one or more social sectors beyond health.¹⁷

¹⁶ There were eight listed infrastructure funds on the London stock exchange with different weightings in PFI/social infrastructure assets at the end of 2019. Five of them focus on equity, one on debt and two on infrastructure shares, with an aggregate market capitalization of £11bn. 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).

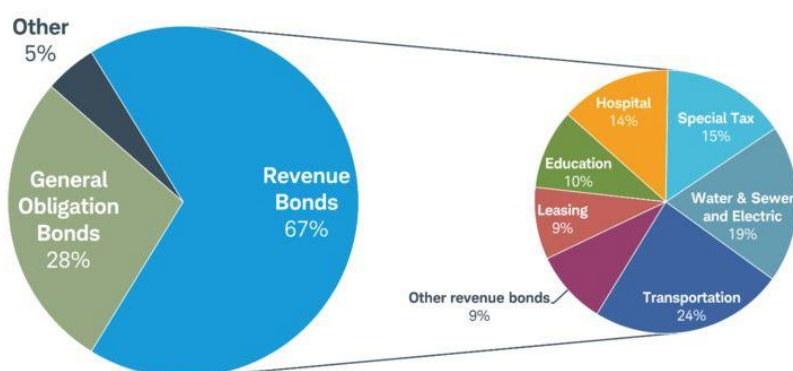
¹⁷ Examples include the GCP Student REIT in the UK, the Housing Partnership Equity Trust for US affordable housing, Japan Senior Living Investment Corporation). Based in Belgium are social

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.¹⁸ “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 indices include social infrastructure. The S&P Municipal Bond Revenue Index and the Bloomberg Barclays Municipal Bond Index show substantial weightings in the education, health care, housing and other social 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.

Figure 6: Composition of the US municipal bond market



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

Corporate bonds and bond indices

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.

infrastructure REITs such as Cofinimmo (healthcare, nursing homes and rehabilitation centres), Aedifica (nursing homes) or Xior (student accommodation).

¹⁸ 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.

Project bonds

Project bonds constitute about 10% of global project debt on average.¹⁹ 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 2019). 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.

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 funds for different regions, sectors and development stages, and more specialists for infrastructure debt. Most funds are closed-end although investors are showing a growing preference for open-ended funds.

A 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 (2020), 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 do include social assets but with rather small weightings. For example, the MSCI Global private infrastructure index has a weighting of about 2-3% in “public facilities” while the EDHECinfra Global unlisted infrastructure equity index has 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.

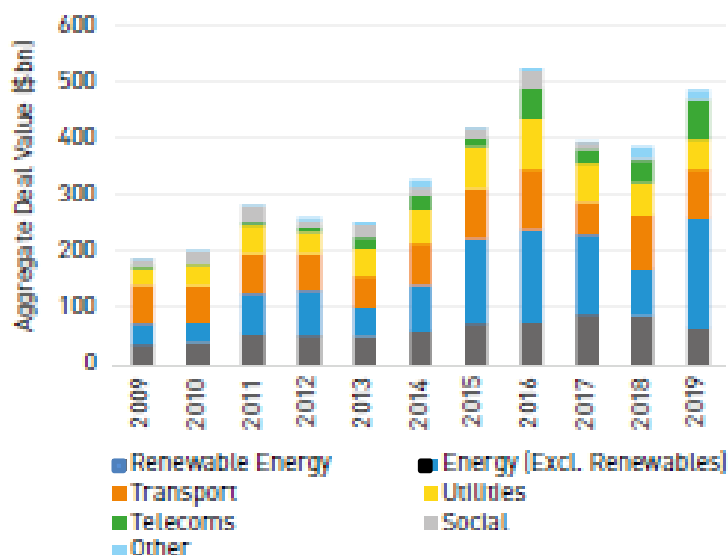
Transaction volumes

Preqin registered around 2500-3000 infrastructure transactions globally in recent years, with an estimated annual aggregated deal value of \$400-500bn (around 0.5% of global

¹⁹ 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.

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: Aggregate value of infrastructure deals by industry, 2009-2019



Source: Preqin (2020)

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 were 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).

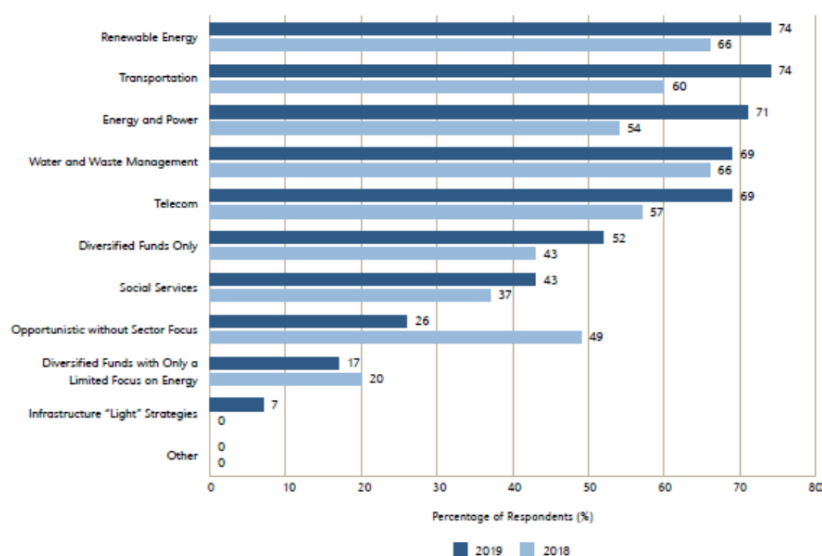
Quite remarkably, there has been a dramatic decline in social infrastructure transactions since 2018. Funds with a preference for PPPs have gone down, too (IJIInvestor 2019). This is primarily driven by Europe, in particular the abandonment of the UK PFI that used to dominate this market with a share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

Social infrastructure funds

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 funds in different countries that invest in a variety of social infrastructure. 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; open-ended Healthcare Wholesale Property Fund by Dexu
- UK: e.g. Dalmore Capital (that manages PPP assets for 5 UK large pension funds)
- Luxembourg: e.g. AviaRent European Social Infrastructure (German nursing homes, day care centres, micro-apartments); Franklin Templeton Social Infrastructure Fund²⁰
- USA: e.g. Harrison Street’s Social Infrastructure Fund L.P.²¹
- Latin America: e.g. Andean Social Infrastructure Fund.

Figure 8: Infrastructure industry sectors of interest



Source: Probitas (2019)

Private equity and debt funds

Private equity has become a mainstream component of institutional portfolios. Many buyout funds invest in social infrastructure sectors. They often include healthcare-related companies (e.g. IT, distribution services, care centres, but also the education, housing and other markets (BVCA 2013). Venture capital can be a financier of technical innovation but also a driver of organizational modernization in higher-risk companies in social sectors.

Prequin (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

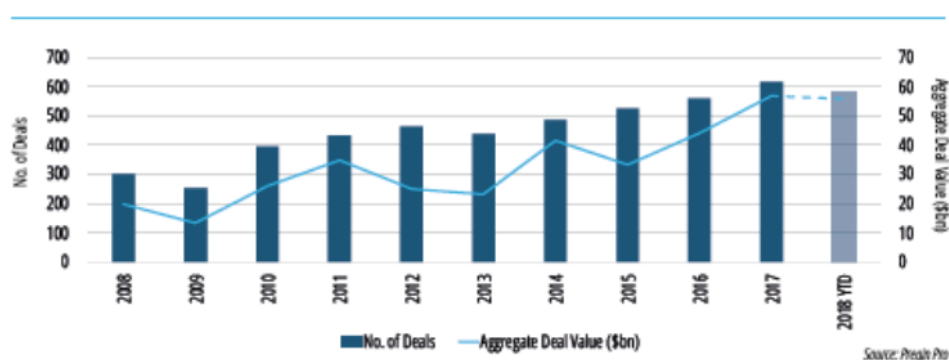
²⁰ This is a pan-European, open-ended investment vehicle with a broad target range of social sectors, aiming to deliver financial and social/green objectives. An “impact report” evaluates alignment with six SDG goals, using impact metrics with a number of KPIs (Franklin Templeton 2020).

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).

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 “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 or Bain Capital own and run healthcare/life sciences companies in the USA and elsewhere. Duke Street Invest or Montreux Capital, e.g., invest in retirement villages and care homes village. Nordic Capital focuses on healthcare companies in their region while The Education Fund holds an Asian portfolio. Some private equity firms, 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. At times of low interest rates, insurers and pension funds, but also other investors, seek a yield pickup from infrastructure loans, real estate and other private debt. This includes also social niche areas such affordable housing loans, either via funds vehicles or direct.

The involvement of private equity firms has become an issue of political controversy in the USA, UK and elsewhere, 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. The coronavirus crisis has intensified the questioning of private equity in health and care.

7.3. Direct investing and co-investing by asset owners

Direct investing in private/unlisted infrastructure companies has become more popular beside indirect (fund) investments. Canadian pension funds such as OMERS, OTPP and CPPIB

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, retirement homes and healthcare facilities

Many social infrastructure assets are effectively “alternative” property investments, and therefore fit easily into the real estate allocations of institutional investor portfolios. One growth area is residential care homes, often funded by the users and their families. Medical facilities, too, can be funded both by public health services or customer revenues. Several real estate investors have also been active in kindergartens and school buildings.

One of the most popular types of “social” investments is currently student accommodation, not only for institutional investors but also property fund managers and operators. The trend has spread from the US to Britain, Continental Europe, Australia and Asia. Also other social infrastructure for universities such as teaching and research spaces, recreational and health facilities are targeted by investors (e.g. the Californian UC Merced 2020 campus as largest US social P3 project).

Several Dutch, Nordic, German, French and other pension funds are already venturing into direct investments in these markets. To give some examples, Pension Danmark cooperates with universities on student accommodation. The Dutch APG, PGGM, SPF and others invest in educational and healthcare facilities. Private and public pension fund investment platforms, such as the UK PIP or GLIL, hold portfolios of social infrastructure assets. A consortium of Danish pension funds invests in hospital projects. US and Canadian pension funds such as PSP have substantial exposure in healthcare properties.

Insurance companies, too, are jumping on the bandwagon. French insurer AXA invests in healthcare buildings, student accommodation as well as data centres and other alternative real estate. A number of SWFs have a small exposure to hospitals, student housing and other social infrastructure, including the Singaporean GIC and Temasek or Abu Dhabi’s ADIA.

Newell and Marzuki (2018a,b) found strong risk-adjusted returns for the UK healthcare property over the period 2007-2016 and UK student housing over the period 2011-2017. Critical risk factors include government policies (e.g. towards foreign students and workers), changing regulation (notorious in health and care), poor performance by operators and lower demand (e.g. for on-campus presence due to digital teaching).

Social and affordable housing

Social and affordable housing is a particularly critical field as an “asset class” (Brennan et al. 2017). Definitions, government programmes, funding schemes and rules vary widely across countries. Social housing tends to have stricter criteria while affordable housing is closer to the private residential property/rental market – more familiar territory for private investors.

Asset owners in many countries have made new direct and fund investments in such properties, often in their own municipality or region. For example, three British local authority pension funds (LPP, LCIV and LPFA) have created “The London Fund” that aims to focus on infrastructure and real estate, including affordable housing and community regeneration. South Africa’s GEPIF 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 has grown strongly over time. However, only a very limited range of investment funds dedicated to social sectors has been launched so far. 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. 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”, including the “resilience” of assets at times of ecological and/or social crises.

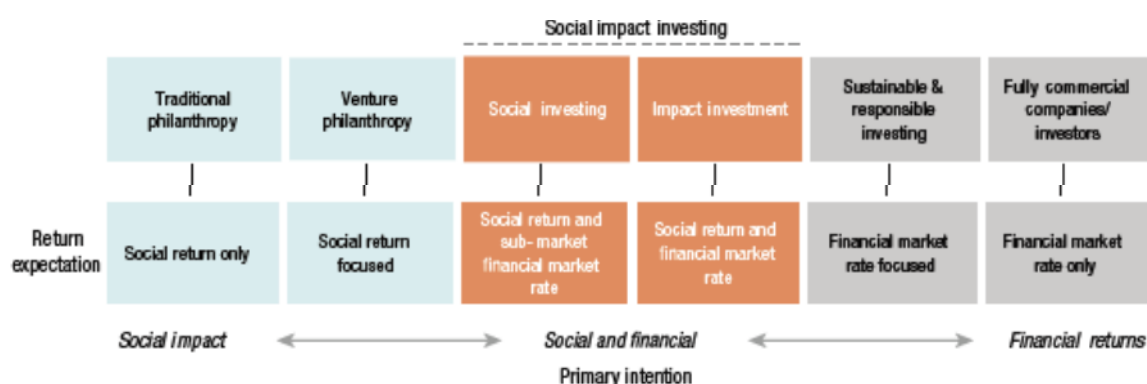
The “S” in ESG is getting more attention since the coronavirus crisis. It mostly relates to human rights, discrimination, working conditions, health & safety, diversity, local communities, consumer protection, animal welfare, and similar. As such, ESG investing does not necessarily imply the investment in particular assets. Serious issues remain especially relating to definitions and application (e.g. “greenwashing”, “social washing”) (Inderst and

Stewart 2018). 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 and impact 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.²² 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, 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/debt and real assets.²³

Figure 10: Traditional, sustainable, impact investing



Source: OECD (2019b), Author

Impact investing has been growing substantially over the years, as has the range of investment instruments. GIIN (2019) estimated the size 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 may have 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.

²² “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). 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.

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.

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 PPRF 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	Vaia	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	GEPP	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 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 (12); 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.

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.

8.1. New social investment vehicles

In recent years, new initiatives and new investment instruments have been introduced to 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 (poor, vulnerable, unemployed, etc.). “Sustainability bonds” cover a combination of both green and social projects.²⁵

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). The COVID-19 crisis spurred a big jump in social and sustainable bond issues in 2020 (Refinitiv 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 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) is 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.

Mid-2020, there were 194 social and development impact bonds in around 33 countries, mobilizing more than \$400m upfront capital (Brookings 2020). They are used for tackling issues in areas such as youth and refugee employment support and education, housing for the homeless and other vulnerable people, health, and criminal justice (e.g. prisoners'

²⁵ Following the “Green Bond Principles”, the International Capital Markets Association (ICMA) coordinates the “Social Bond Principles” (ICMA 2020) as well as “Sustainability Bond Guidelines” and “Sustainability-Linked Bond Principles”.

recidivism). Several foundations, charitable trusts and pension funds (such as the Great Manchester Pension Fund, Merseyside Pension Fund) have taken an interest in SIBs).

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 discussed) 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. 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 and care sectors 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 of 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 more diversified infrastructure products. However, only a very limited range of specialist investment funds dedicated to social sectors has been launched so far. 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. 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. At least until the coronavirus crisis, their focus has been primarily, if not exclusively, on economic infrastructure. The rising “wall of money” from institutional investors, too, has been mainly targeting 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 2017a):

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 much 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. Similarly for national infrastructure audits, stock evaluations and assessments
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 “more difficult” social facilities) (e.g. Casady and Geddes 2020). “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 “mission-oriented” state investment banks; recommendations for wider regional support policies (e.g. Fransen et al. 2018, Social Services Europe 2018, Hemerijck et al. 2020).

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

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 (e.g. Deloitte 2019).

1. Adequate governance and clear accountability in both private and public sector. Health, education, care, prisons, public spaces etc. are particularly sensitive areas (IDB 2015).
2. Improve transparency and disclosure on infrastructure projects, companies and investments, including on ESG and environmental, social and economic 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.
5. Academia should finally see the opportunity given by the big research gaps in this field. Some analysis of investment characteristics, risk factors, diversification etc. of infrastructure assets is now being undertaken - but little yet on social infrastructure.

Conclusions for social infrastructure investment

This multi-sectoral, global analysis of financing and investment of (primarily “hard”) social infrastructure leads to several key conclusions. (Some lessons may well apply also to “soft” social services, which face even bigger challenges.)

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, and they are typically very “local”. Government (at different levels) need to work out better what specifically can best be funded by users who are able to pay, and what needs to be provided by the public sector in support of the vulnerable or as a public good. 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/projects in social sectors is a big challenge. It is bigger than previously thought in advanced countries, and even more so in emerging markets. Many policy initiatives to mobilize more private capital have not been very effective. Social infrastructure is the Cinderella of the new “infrastructure asset class”.

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 involved. The investor universe is very diverse, using many different portfolio strategies, so there is space for all sorts of - more or less risky – social assets with their own specifics. Working out an investible pipeline for social projects may be strenuous across financial and social departments but governments finally need to get their act together.

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 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 work with the full spectrum investment vehicles. Healthy lessons can surely be learnt, even from problematic experiences with, e.g. private equity firms - especially now. 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 have faced 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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