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**Article**

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# Public investment in the Berlin state budget: education and transport are falling short

By Felix Arnold, Johannes Brinkmann, Maximilian Brill, and Ronny Freier

In Berlin, as elsewhere, public investment is critical to an individual's life satisfaction and a prerequisite for positive economic development. There are many fields of activity for public investment. For instance, the tasks for Berlin include a sustainable transport concept that maintains and develops the local passenger transport network, a sustainable cycle concept, new schools need to be built and old ones need renovating, and Berlin must find answers to problems in its housing market.

A glance at Berlin's public investment activities reveals a mixed picture. In 2014, the city invested a total of 2.8 billion euros in its core budget and in local public firms, equivalent to around 810 euros per inhabitant. This means the capital city is worse off than Hamburg, for example.

To strengthen public investment activity, Berlin's administrative practices should be thoroughly reviewed in order to gain an overview of its asset situation and public investment requirements. In addition, it is recommended that the structure be organized in content-related special funds or public enterprises with their own personnel and extensive rights to assert claims—similar to Grün Berlin GmbH.<sup>1</sup> Since schools are one of the most important locational factors, not only must gaps in the school infrastructure be closed but also more teachers need to be employed.

The present article, one of three published in the current edition of *DIW Economic Bulletin*, analyzes public investment spending in the Berlin state budget. It outlines some of the fields of activity and provides an overview of investment in the public sector (see box). First, the report documents the development of total spending on investment over time. Then it reviews the distribution of investments by type, i.e., construction, acquisition of material assets, grants, and by administrative level, i.e., the Senate, districts, and public firms. There is a particular focus on investment in education and transport. Furthermore, the article examines public housing. Although the three tasks mentioned above are important aspects of public investment activity, other areas such as day care centers, digitalization, or public services have been excluded. The data analyzed here are mainly from 2014 because records for this year are complete. Furthermore, the report attempts to outline current developments in the most important areas.

## Poor planning and failures in public investment

Berlin is often publicly criticized for its investment projects. Berlin-Brandenburg Airport (BER) is now symbolic of poor planning and financial risk in public investment. Berlin's *Staatsoper* (state opera) will cost twice as much as expected, according to current estimates.<sup>2</sup> Berlin's education system is suffering from a chronic lack of teachers and the school buildings are often old and dilapidated, or schools are under-equipped. More recently, the people took housing construction policy on the future of the Tempelhofer Feld to task and the transport policy may yet suffer a similar fate as a result of Berlin's Bicycle Referendum on cycle traffic. In 2003, the Ber-

<sup>1</sup> Grün Berlin GmbH is a public company that designs Berlin's "cityscapes": these include Tempelhofer Feld (location of the former Tempelhof airport), the park at Gleisdreieck, and the *Internationale Gartenausstellung* (International Garden Festival) 2017.

<sup>2</sup> Berlin House of Representatives, Committee of Inquiry into the State Opera, printed papers 17/2999 from June 10, 2016 (2016), 108-109. The cost to the city of Berlin has risen from nine million to the current 196 million euros.

Box

**Data basis**

Data from a variety of sources were used to obtain an overall picture of investment activity in the cities of Hamburg and Berlin. The figures relating to investment in the core budget largely originate from the budget and capital account (Berlin) or the revenue and expenditure account (Hamburg). Further investment figures in public and state enterprises were derived from the respective participation reports or budgets of the two cities. These are realized figures and, in the case of Hamburg's state enterprises, budget data are available for 2014. Participation data are only considered if the relevant city holds a 100-percent stake in the companies. A clear political association can thus be guaranteed. Data on the SIWA investment program originate from the Berlin Senate Department for Finance. Generally, it

should be noted that the search for data proved difficult. A variety of sources were used and combined to ensure good comparability and allocations. We sometimes deviated from the official definition of investments by adding maintenance and repair costs to assure comparability between Berlin and Hamburg. Another problem was the numerous special programs (e.g., the joint task on improving regional economic structures, GRW) that sometimes invest in transport without indicating this under the appropriate items in the budget. Moreover, we sometimes had to incorporate contradictory information from different sources into the report. In order to be as transparent as possible, the relevant problems and assumptions are identified in footnotes in the applicable sections of the report.

lin Senate decided to stop funding social housing completely.<sup>3</sup> Faced with a growing housing shortage, the public sector began financing social housing again in 2014.<sup>4</sup> That same year, Berlin's core state budget was indebted to the tune of 60 billion euros. This explains why there has never been enough money available for investment in Berlin's public infrastructure.

### Berlin economic policy successes: Adlershof and the Charité

Nevertheless, there are some success stories. Economic conditions have changed for the better.<sup>5</sup> Berlin has managed to become an attractive location for startups and new companies<sup>6</sup>. Prime examples of successful economic policy are the Adlershof research hub and strong development in the health sector with the Charité hospital at its core.<sup>7</sup> Overall, Berlin is an attractive location for science, thus creating the prerequisites for new and innovative economic activity. Even the unfinished Ber-

lin-Brandenburg Airport (BER) has already stimulated growth in the south of Berlin<sup>8</sup>—a trend that will probably increase again when it opens.

Another positive factor is that regular budget surpluses in recent years have gone to servicing debt and into an investment program. The city's major investment projects are organized separately from the core budget and implemented using a special infrastructure fund for a growing city (SIWA). The key focus is on investment in education and the improved provision of accommodation for refugees.<sup>9</sup>

As Germany's largest city and city state, it is difficult to compare Berlin with other German cities. In addition to making municipal investments, Cologne and Munich also implement large state projects which cannot always be assigned to the relevant municipalities in state budgets. In contrast, the other two city states of Bremen and Hamburg are more comparable, although Bremen is too small in relative terms. The figures can be better compared to those for Hamburg because Berlin is certainly in direct competition with Hamburg both to attract businesses and in terms of economic strength. Nevertheless, it is clear there are problems with comparability here. Hamburg is a net payer into state financial equalization; it has a strong economic base and its state budget is in better shape. In addition, Berlin has a special role as the

3 <http://www.stadtentwicklung.berlin.de/wohnen/anschlussfoerderung/>.

4 <http://www.stadtentwicklung.berlin.de/wohnen/wohnungsbau/de/foerderung/>.

5 Compared to all the other German federal states, growth of Berlin's economy has been well above average in the past decade. See the editorial in this issue of *DIW Economic Bulletin*.

6 See in this issue the articles by Kritikos, A. (2016): Berlin: a hub for startups but not (yet) for fast-growing companies and Brenke, K. (2016): The Berlin labor market since 2005: strong employment growth yet unemployment remains high, incomes low.

7 The Charité generated an added value in Berlin of 1.4 billion euros with a grant from the Senate worth 217 million euros. In addition, the university hospital generated around 26,000 jobs. See DIWecon, "Wirtschaftsfaktor Charité," from November 2, 2012, accessed June 21, 2016.

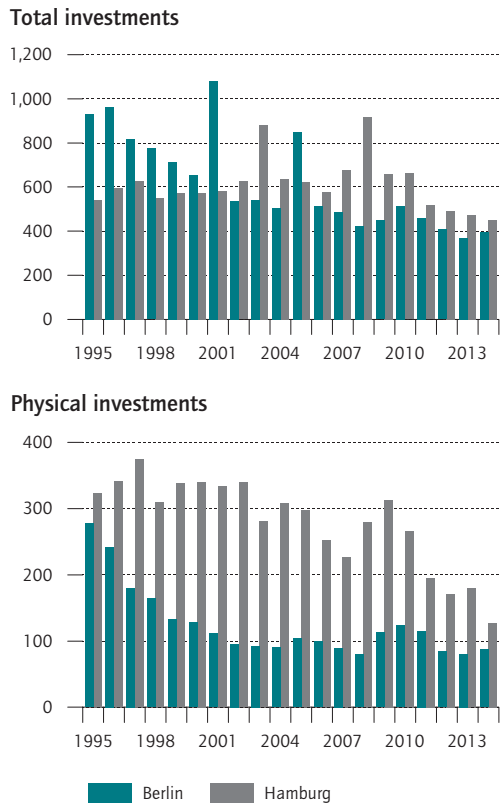
8 BertelsmannStiftung, *Kommunaler Finanzreport* (Gütersloh, 2015), 89.

9 [www.berlin.de/sen/finanzen/presse/pressemitteilungen/pressemitteilung.454452.php](http://www.berlin.de/sen/finanzen/presse/pressemitteilungen/pressemitteilung.454452.php).

Figure 1

**Public investment in town budgets in Berlin and Hamburg**

In Euro per capita



Source: Berlin—Official town budgets; Hamburg—2001 Genesisdata (Federal Office of Statistics), from 2002 town budgets

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Total public investment in Berlin is shrinking since the mid-nineties. Hamburg clearly ahead in physical investment.

federal capital. Moreover, it should be noted that the division of administration in core budgets as well as investment in public firms and state enterprises is specific to each federal state and depends on the sector.

**Long-term trend: total and real investment is declining**

Both total spending on investment and real investment (investment in construction and acquisition of tangible assets) have declined considerably since the late 1990s (see Figure 1).<sup>10</sup> This shows, first, that pressure on direct investment after reunification has eased over time and,

<sup>10</sup> The enormous increase in 2001 was due to an emergency bailout for the Landesbank Berlin. Since the Bankgesellschaft Berlin almost failed to meet its equity capital quotas, the City of Berlin agreed a fresh injection of capital

second, funds from the Solidarity Pact II were reduced from 2005 onward.<sup>11</sup>

Between 2002 and 2010, Berlin invested considerably less in its core budgets than Hamburg. Only in recent years has there been a convergence in per capita investment in the core budgets of the two cities. In 2014, Berlin spent around 398 euros per inhabitant on investment; in Hamburg, the corresponding figure was 451 euros. In terms of real investment, which is considered a more precise definition of investment in construction and property, Berlin only planned to spend 87 euros per capita, while in Hamburg this figure was 127 euros.<sup>12</sup>

**Largest types of investment in core budget: grants to public and private firms**

In order to better understand total spending on investment and real investment, it is worth looking at the composition of this budget item in the revenue and expenditure account for 2014 (see Figure 2). This shows that well over 50 percent of investments are booked as grants, including grants to state-owned firms and participations, for example, in the Berlin Transport Authority (BVG) and the hospital group Vivantes, as well as to public bodies such as universities and the Charité, and grants for investment in private and non-profit enterprises, such as charitable day care centers and other social agencies.

The second largest item is real investment with approximately 21.8 percent of total investment spending. This is subdivided into three groups: 15.2 percent is on construction, 5.3 percent on the acquisition of movables and 1.3 percent on the acquisition of immovables. The main reason why the shares of these types of investment are so low is because of the administrative structure consisting of a large number of outsourced investment activities. The grants awarded here might also be used for real investments but are not categorized as such in the core budget.

In addition to investment grants and real investment, a variety of financial transactions are booked as investment spending. These include spending on participating interests in companies, direct lending for economic development, and invoked guarantees.

worth two billion euros as part of the capital increase. Bankgesellschaft Berlin, *Annual Report* (2001), 1 and 50.

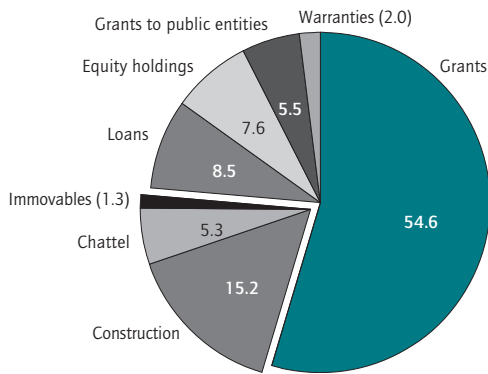
<sup>11</sup> The Solidarity Pact II replaced the Solidarity Pact I in 2005. Funds for the former East German federal states declined each year. For Berlin, this means a reduction from around two billion euros in 2015 to 400 million euros by 2019. See *Financial Equalization Act* (Finanzausgleichsgesetz, FAG), 11 (2001).

<sup>12</sup> In Berlin and Hamburg, the share of real investment to total investment in the core budget is relatively low due to investment grants to private and public firms which are not categorized as real investments.

Figure 2

**Public Investment in town budget Berlin 2014—by type of investment**

In percent



Source: Official town budget 2014, p. 47-49.

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Grants make for the largest part in the investment budget.

**Investment by public companies is almost as high as the core budget**

The following section considers the total investment by the Senate, the districts, state enterprises, and companies with public participation (see Figure 3). In addition to the core budget, it gives an overview of the investment activities of public companies—again compared to Hamburg.

Initially, it appears that the difference in investment in the core budget between Berlin and Hamburg, i.e., the Senate and the districts, is not particularly large. Within Berlin's core budget, the investment rate of the districts is at ten percent. In contrast, Hamburg allows its districts to implement less than two percent of investment in the core budget. This difference between Berlin and Hamburg is to a large extent due to the fact that Berlin's districts are responsible for schools. Hamburg, however, set up a special fund for school property in 2010 and has since invested heavily in its education infrastructure.

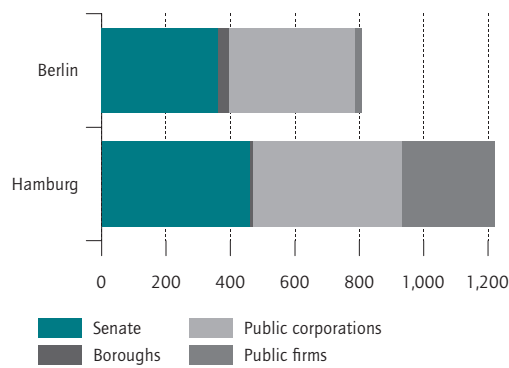
Apart from investment in the core budget, Berlin's public companies also play an important role. These are divided into participations in companies and state enterprises, including special funds. According to the investment report for 2014, Berlin owns 33 companies outright.<sup>13</sup> Examples include the Berlin Transport Authority

<sup>13</sup> If we were to also include enterprises in which Berlin had a less than 100-percent stake, per capita investment would increase by around 170 euros.

Figure 3

**Public investment in Berlin und Hamburg 2014—by senate, boroughs, public corporations and public firms**

In Euro per capita



Source: "Haushaltsjahr 2014 Gesamthaushalt IST" for Berlin und "Haushaltsplan 2014" ("Zahlenwerk") for Hamburg, statements of public firms.

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Hamburg invests more than Berlin, especially through public firms.

(BVG), the Olympic Stadium, Grün Berlin GmbH, Vivantes, and several housing associations. The city holds less than 100-percent shares in 22 companies.<sup>14</sup> These include Berlin-Brandenburg Airport (BER), the integrated public transport system in Berlin and Brandenburg (*Verkehrsverbund Berlin-Brandenburg, VBB*), and Berlin's trade fair (*Messe Berlin*). For the purposes of the present study, we will restrict ourselves to the companies in which Berlin has a 100-percent stake because of the clear political controllability.<sup>15</sup> In general, the outsourcing of investment to public companies is only of interest when the outsourcing results in responsibility for a particular area being met centrally, when it is profitable, and when tasks are fulfilled transparently for both citizens and politicians.<sup>16</sup> In addition to cases of legally independent participation, which are reported in the participation report, there are also some federal state firms. Managing them has been outsourced to independent organizations. Legally, however, these are clearly part of Berlin's state ad-

<sup>14</sup> The shareholding structure of Berlin's water utility company (*Berliner Wasserbetriebe*) is unusual. Here, Berlin is directly and indirectly the outright owner but the participation report only indicates a participation of 50.1 percent. Due to its *de facto* ownership, Berlin's water utility company was counted as having a 100-percent participation.

<sup>15</sup> Another problem with public firms is their organizational structure in holdings whose other subsidiaries do not necessarily need to disclose their investments in the participation report.

<sup>16</sup> Cullmann et al., "No Decline in Investment in Public-Sector Energy and Water Supply," *DIW Economic Bulletin*, no. 43 (2015): 577-583 and "No Differences in Efficiency Between Public and Private Utilities," *DIW Economic Bulletin*, no. 20 (2016): 233-238.

ministration.<sup>17</sup> They include, *inter alia*, state enterprises such as the Berlin State Mint, special real estate funds, and facility management firms.<sup>18</sup>

Investment in public companies in Berlin is almost as high as spending in the core budget (see Figure 3).<sup>19</sup> In Hamburg, investment in public companies is around 1.6 times greater than investment spending in the core budget.<sup>20</sup> There is a major difference in the amount invested by Berlin and Hamburg in state enterprises—in particular due to the special fund mentioned above.

The investment activities of public enterprises in 2014 show that Berlin had a considerable investment gap compared to Hamburg. Overall, per capita investment in Hamburg was almost 50 percent higher than that of Berlin.

### Too little investment in Berlin's schools for too long

Education and culture are not only interesting because both the Senate and the districts are responsible for these areas but also because they form the largest investment area in the core budget (31 percent in 2014).

In the education sector, Berlin spends 56 euros per capita on universities and science and research. These include investment grants for universities, renovating the Charité building, and grants to non-university research institutes. Here, Berlin is in fact investing more than Hamburg which spends around 31 euros per inhabitant (see Figure 4).

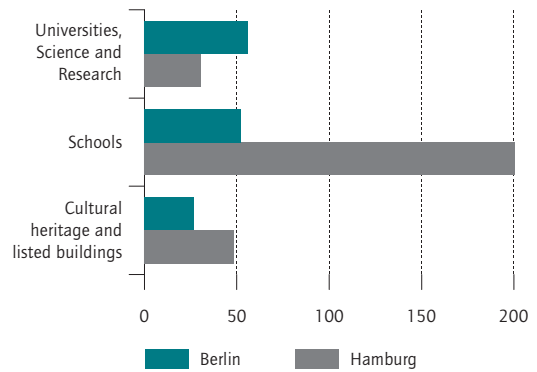
Conversely, Hamburg invests more in cultural heritage and listed buildings: 49 euros per inhabitant, compared to 27 euros in Berlin. Most of this goes to the Elbe Philharmonic Hall which in 2014 alone cost Hamburg 47 euros per inhabitant. By contrast, a modest 15 euros per inhabitant were spent on the Berlin State Opera.

The big difference in education policy is reflected in the amount invested in schools. Here, only 53 euros per in-

Figure 4

### Public investment in schooling and culture in Berlin und Hamburg 2014

In Euro per capita



Source: "Haushaltsjahr 2014 Gesamthaushalt IST" for Berlin und "Haushaltsplan 2015/2016" (with current budget for 2014) for Hamburg, statements of public firms.

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Berlin slightly ahead in higher education and science, but way behind in schooling.

habitant was set aside in Berlin's 2014 budget, while Hamburg invested around 200 euros per inhabitant in schools during the same period.<sup>21</sup>

This also explains why there is a massive investment backlog in Berlin's schools. Germany's capital has since identified a need to invest 4.9 billion euros in refurbishing its schools as a result of a building survey.<sup>22</sup> To put this number into context, a comparison can be made with the findings of the municipal panel set up by the reconstruction loan corporation (*Kreditanstalt für Wiederaufbau, KfW*). This identified an investment gap of 34 billion euros for the area federal states, which equates to around 450 euros per inhabitant.<sup>23</sup> Berlin's investment requirement is, however, more than three times this fig-

<sup>17</sup> Hamburg has considerably more public firms and often a complex structure with holdings and subsidiaries. Additionally, there are 24 local public firms and special funds.

<sup>18</sup> Berlin also has a local public company for day care centers. Data on investments in local public firms could not be found in its budget.

<sup>19</sup> We have only considered 100-percent participations in Berlin and Hamburg in the present study because their political controllability can be transparently allocated.

<sup>20</sup> However, it should also be mentioned here that investments in participations in Hamburg are higher because essential services were handed back to the municipalities. As a result, public companies invest in the water, waste water, and energy supply, while in Berlin only the supply of water is controlled by the public sector.

<sup>21</sup> In fact, a precise representation of the figures for Berlin is difficult here. Apart from the usual investments, the 52 euros per capita also include building maintenance and construction as part of the sanitary installation and sporting facility renovation program. For the present analysis, the original definition of investment is different from that in the core budget. This allows us to better compare with the special fund in Hamburg which also implements renovation measures.

<sup>22</sup> See <https://www.berlin.de/sen/bjw/schulsanierung/>, accessed July 5, 2016.

<sup>23</sup> This includes the investment backlog in the entire education sector (also day care centers). This means that Berlin's backlog in school investment is even greater. Kreditanstalt für Wiederaufbau, *KfW-Kommunalpanel 2016* (KfW Bankengruppe, 2016), 1.



ure at over 1,400 euros per capita. Between 1.2 and 1.5 billion euros need to be invested within the next ten years to rectify the worst shortcomings.<sup>24</sup> However, in order to obtain this sum alone, annual investment in the education sector would need to be almost doubled.

The Berlin districts are responsible for their respective schools, but this fragmented division of responsibility seems to be a problem. Even the result of the current building survey needs to be checked again, as the data reported by the districts are not yet compatible due to different software and different methods of recording certain renovation projects. Consequently, the Senate established a task force for school building construction called *Task Force Schulbau* to better coordinate the development of schools.<sup>25</sup> The districts are also to receive standardized software in 2017.

Hamburg, however, recognized seven years ago there was a large investment requirement and passed legislation to set up a special fund for school property in January 2010.<sup>26</sup> The responsibility for schools was transferred to the centrally organized fund, investment requirements were systematically documented, and investment measures implemented. The example of Hamburg shows that centralizing the task of constructing schools has a positive impact. For Berlin, however, the question is whether the districts would be prepared to give up this part of their mandate.

### Transport policy is more than just an airport

Transport policy is also a crucial part of investment in the core budget (24 percent in 2014). On this subject, Berlin-Brandenburg Airport has dominated the media in recent years. The cost of the airport was initially estimated at two billion euros but that figure has since risen to a whopping 6.5 billion euros<sup>27</sup>. The *Flughafengesell-*

*schaft Berlin Brandenburg GmbH* (FBB), which also operates Tegel and Schönefeld airports in Berlin, is responsible for the construction of the new airport. The states of Berlin and Brandenburg each hold a 37-percent and the federal government a 26-percent stake in the airport company.<sup>28</sup>

The final financial burden for the state of Berlin is yet unknown. Much of the investment in the capital's new airport was secured through bank loans with public guarantees totaling 2.4 billion euros.<sup>29</sup> The share of bank loans to total assets is around 65 percent (as of 2014).<sup>30</sup> Should the *Flughafen GmbH* ever generate surpluses from a functioning airport, these will go into debt financing. However, there is also the risk that the guarantee will be called in if the project fails. Then Berlin would bear a financial burden amounting to its total shareholders stake. From 1999 to 2010, Berlin invested over 300 million euros in the company's equity.<sup>31</sup> When the company ran into financial difficulty as a result of the opening being postponed in 2012, the three shareholders had to provide an additional 1.2 billion euros in equity, according to their shareholdings, as emergency aid for the company.<sup>32</sup> This sum had not been fully accessed by the end of 2014.

In addition to the city having a vested interest in the airport opening soon, Berlin also had to maintain and improve the public transport infrastructure and road construction including cycle paths. Both in Berlin and in Hamburg, the local public transport network makes up for a large portion of investment (see Figure 5). Per capita, Hamburg spends more than double as much as Berlin on roads, including cycle paths.<sup>33</sup>

Berlin benefits from direct federal investment in road construction as any other state, for instance, in federal highways. The long controversial expansion of the A100 is financed almost entirely by the federal government.<sup>34</sup>

**24** Joint declaration on a status survey to determine the status of renovation and renovation requirement of Berlin schools, Senate Department for Education, Youth and Science from June 30, 2016.

**25** Senate Department for Education, Youth and Science, press release from June 28, 2016, accessed July 1, 2016. See [http://www.berlin.de/sen/bjw/service/presse/pressearchiv-2016/pressemitteilung\\_492227.php](http://www.berlin.de/sen/bjw/service/presse/pressearchiv-2016/pressemitteilung_492227.php).

**26** On January 1, 2010, Hamburg transferred the entire fund for school buildings and real estate—almost four billion euros. The special fund was financed by renting the schools to the schools authorities and from external loans. See <http://www.hamburg.de/pressearchiv/2038002/2010-01-07-fb-sov-schulbau-gf/>. Last accessed June 13, 2016. On January 1, 2013, the special fund was restructured. The local public firm SBH Dienstleistungen was awarded the contract to construct the schools while the school buildings remained part of the special fund for school real estate. Most of the personnel moved from the special fund to the public company. Senate communication to Parliament, printed papers 20/5317 (2012), from September 18, 2012, accessed June 17, 2016.

**27** See <http://www.tagesspiegel.de/berlin/flughafen-in-berlin-eu-begrenzt-ber-kosten-auf-6-5-milliarden-euro/12728266.html>.

**28** The aforementioned figures do not include the *Flughafengesellschaft's* investment in the Berlin-Brandenburg Airport. The present report only includes investments by public companies in which the city of Berlin has a 100-percent stake. This is not the case for the airport. See <http://www.berlin-airport.de/de/unternehmen/ueber-uns/unternehmensorganisation/beteiligungsstruktur/>.

**29** Berlin-Brandenburg Airport press release from June 30, 2009, accessed June 21, 2016. <http://www.berlin-airport.de/de/presse/pressemitteilungen/2009/2009-06-30-bbi-finanzierung/index.php>.

**30** City of Berlin's Participation Report, vol. 2 (2015), 396.

**31** Budget plans for Berlin, Capital Assets for 2000 to 2012/2013.

**32** Berlin-Brandenburg Airport press release from December 19, 2012, accessed June 21, 2016. <http://www.berlin-airport.de/de/presse/pressemitteilungen/2012/2012-12-19-finanzierung/index.php>.

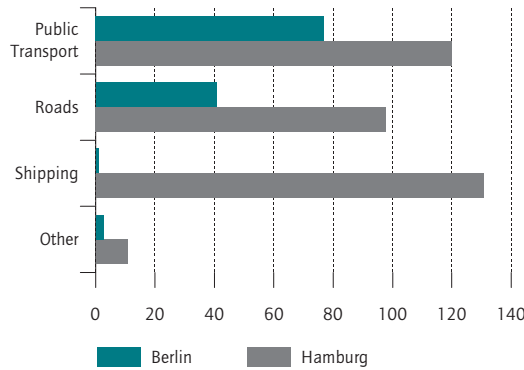
**33** Around one-third of Hamburg's investment in roads has been set aside for the order management of federal highways and capping the A7. If these special effects are excluded, per-capita spending is doubled. Spending on refurbishing and maintaining roads has been added to transport investment for both Berlin and Hamburg.

**34** The city of Berlin only covered the planning costs.

Figure 5

**Public investment in urban mobility in Berlin und Hamburg 2014**

In Euro per capita



Source: "Haushaltsjahr 2014 Gesamthaushalt IST" for Berlin und "Haushaltsplan 2014" ("Zahlenwerk") for Hamburg, statements of public firms.

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Hamburg invests more in public transportation and roads.

This project involves huge sums of money because the 16th construction phase, scheduled for completion in 2022<sup>35</sup>, will cost around 473 million euros.<sup>36</sup>

**Berlin should invest more in cycling infrastructure**

According to the Berlin state budget of 2014, only around seven million euros was set aside for maintaining cycle paths and improving the cycling infrastructure. Despite a budget of seven million euros, only projects costing a total of around five million euros had been implemented by the end of the year. Consequently, 30 percent of the planned cycle infrastructure budgets has not been invested. Additionally, Berlin has awarded just under two million euros in grants from the joint scheme for improving regional economic structures (GRW) for the construction of cycle paths.<sup>37</sup> Nevertheless, in 2014, Berlin

**35** The German Federal Transport Infrastructure Plan (*Bundesverkehrswegeplan*, BVWP) recently published by the Federal Ministry of Transport and Digital Infrastructure includes both the 16<sup>th</sup> and 17<sup>th</sup> construction phases of the A100. A total of 848 million euros has been set aside for both sections in the cost planning. In addition to the A100, the plan also includes a total of 126.5 million euros for the refurbishment and extension of the AVUS highway section to six lanes. The new BVWP also includes investment for Hamburg, *inter alia*, in the new inner-city highway connection to the harbor (895 million euros) and the capping of the A7. See <http://www.bvwp-projekte.de>.

**36** See [http://www.stadtentwicklung.berlin.de/bauen/strassenbau/a100\\_16\\_ba/de/zahlen.shtml](http://www.stadtentwicklung.berlin.de/bauen/strassenbau/a100_16_ba/de/zahlen.shtml).

**37** Notification on funds from the European Regional Development Fund (ERDF) and the joint task on improving regional economic structure (*Gemein-*

only spent a total of around two euros per inhabitant on the cycling infrastructure. Compared to other cities in Germany and in Europe, this figure is very low. For example, in 2015/16, Oslo invested over 70 euros per inhabitant in the cycle path infrastructure<sup>38</sup> and Copenhagen spent more than 20 euros per inhabitant and per annum. In 2014, Hamburg invested around seven euros per capita, which was considerably more than Germany's capital city.

Small wonder that, in the context of Berlin's Bicycle Referendum on cycling in the capital, the first hurdle was overcome when it garnered 105,000 signatures in favor of introducing legislation on cycling. A costing of the initiative revealed spending on this legislation would cost around 13 euros per person per year. The total cost for an improved cycling infrastructure in Berlin would be around 320 million euros over an eight-year period. According to estimates by the Berlin Senate, financing required to implement a cycling act would reach more than two billion euros.<sup>39</sup>

**Investment requirement for the local public transport network**

As more and more people move to Berlin, it is also important for the Berlin Senate to consider expanding its local public transport network. In addition to the construction of the new extension to the U5 line from the main railway station to Alexanderplatz,<sup>40</sup> there have also been discussions about extending certain underground routes, such as extending the U1 to Frankfurter Tor (or Ostkreuz) to the east and to Adenauerplatz in the west, extending the U8 into the Märkisches Viertel, and the U3 to Mexikoplatz.<sup>41</sup> There are plans to expand the tram network following some existing improvements in this area. There are also discussions on improving connections in Berlin's hinterland (connecting Falkensee or Nauen to the suburban railway and reactivating Berlin's main line).

*schaftsaufgabe "Verbesserung der regionalen Wirtschaftsstruktur," GRW*, Berlin House of Representatives, printed papers 17/1796, accessed June 21, 2016.

**38** Oslo also declared cycle transport one of its stated aims with the election of a new mayor in 2015 and plans to invest more than 460 million euros in this area by 2025 (with around 600,000 inhabitants).

**39** Promotion of Cycling Act (*Gesetz zur Förderung des Radverkehrs in Berlin, RadG*)—Berlin's Bicycle Referendum. See [www.volksentscheid-fahrrad.de](http://www.volksentscheid-fahrrad.de).

**40** Although for a long time the project seemed to be within budget and on time, the costs have since shot up. It is currently 20 percent over budget (from 433 to 525 million euros). The cost of the new underground connection will be covered by central government and the City of Berlin. The U5 line is due to be completed in 2020. Should the project not be completed on time, Berlin will have to pay back grants from central government of 150 million euros, plus interest. See <http://www.projektu5.de/de/die-neueu5/> and <http://www.morgenpost.de/berlin/article206823699/Kanzler-U-Bahn-wird-noch-mal-um-30-Millionen-Euro-teurer.html>.

**41** Land development plan for Berlin, *FNP-Bericht 2015, FNP-Themenkarte Schienennetz*, (2015), 161, accessed July 5, 2016.



The BVG also has a specific investment requirement in expanding its fleet of buses, laying new tram lines, and purchasing new underground trains. Even though new vehicles were purchased, there are still not enough trains on the U5 to U9 lines. The BVG also plans to invest in the accessibility of its underground network.<sup>42</sup>

It is also important for transport policy to monitor the direct correlation between the housing market and housing policy. The more connectivity urban areas enjoy, the more attractive residential areas emerge.

### Housing market policy should focus on additional living space

In general, rental prices in Berlin are lower than in other German major cities or European capitals. However, rents have risen considerably in recent years.<sup>43</sup>

In response to the tight housing market in Berlin, the Senate implemented an initial rental brake and, in May 2014, it also issued a ban on alienation in use of buildings, e.g., renting flats as holiday apartments. As discussed in *DIW Wochenbericht*, no. 22/2016, these measures do not go far enough.<sup>44</sup> The pressure on the market can only properly be relieved by creating additional living space.

Berlin has only recently begun to invest in social housing again. A housing construction fund was set up in 2014 which has been enshrined in law as a special fund since last year. Between 2014 and 2017, 320 million euros were set aside to finance it.<sup>45</sup> The funding will be made available as loan financing for builders or as rental grants and is subject to rents and occupancy conditions. In 2014 and 2015, around 1,200 apartments were financed under these conditions.<sup>46</sup> How quickly and to what extent the funds provided will be made available to and accessed by investors remains to be seen. With almost 40,000 additional inhabitants per year, Berlin will have to step up its efforts considerably.

<sup>42</sup> Around 64 percent (110 of 173) of Berlin's underground stations are currently fully accessible. The BVG is planning to make all stations fully accessible by 2020 and intends to convert ten stations in 2016 alone. "Neuer Aufzug am U-Bahnhof Haselhorst," BVG news release, January 29, 2016 and a written inquiry by parliamentary representative Alexander Herrmann, printed paper 17/16504 from June 29, 2015.

<sup>43</sup> Not least, the number of empty apartments in Berlin has halved since 2014. See Kholodilin et al., "Die Mietpreisbremse wirkt bisher nicht," *DIW Wochenbericht*, no. 22 (2016): 491–499.

<sup>44</sup> In particular, the rental brake has proved ineffective to date. There are now political discussions on further tightening the rental brake, among other things.

<sup>45</sup> See House of Representatives, dossier 1482, letter to the chairman of the committee from April 1, 2014.

<sup>46</sup> See <http://www.stadtentwicklung.berlin.de/wohnen/wohnungsbau/de/foerderung/>.

### Funds are available but are only being accessed slowly

In order to take account of recent developments, it is also worth mentioning at this point a special fund set up to meet the needs of the growing city (SIWA). Due to a higher than expected budget surplus of more than 800 million euros in 2014, in December of the same year, it was decided to distribute these surpluses proportionally in debt reduction and the SIWA investment program. The Senate also decided to plow half of surpluses in future years into this special fund.<sup>47</sup> Responsibility for investment spending continues to lie with the personnel of the relevant authorities. Unlike investment measures in the core budget, money in the special fund is not linked to a specific year and can be spent over several years.<sup>48</sup>

The total volume of surpluses from 2014 invested in SIWA I is 496 million euros. Another 193 million euros from surpluses in 2015 are earmarked for SIWA II. Measured against total investment in the budget and in public companies of almost three billion euros in 2014, this constitutes a substantial program to improve infrastructure (see Figure 6). SIWA I includes 120 million euros for infrastructure projects in the districts, 58 million euros for new underground trains, 40 million euros for refugee accommodation, and 18 million euros for schools (modular auxiliary facilities).<sup>49</sup> Of the funds that will go to the districts, the majority of investments will be in schools. Overall, a total of around 93 million euros is earmarked for the education sector.<sup>50</sup>

Of the funds in SIWA II for 2016, more than 80 million euros will be invested in refugee accommodation and 70 million euros in schools (see Figure 6), five million euros will be spent on police shooting ranges,<sup>51</sup> and four million euros on subway elevators.<sup>52</sup>

The program is headed in the right direction to close the investment gap. However, many measures are delayed.

<sup>47</sup> The precise regulation depends on the exact surplus amount. Half of surpluses are incorporated in the investment program, as long as the surpluses exceed 200 million euros. If surpluses are lower, a different regulation applies. See SIWA establishment act (*SIWA ErrichtungsG*), 4, sentence 1.

<sup>48</sup> See SIWA establishment act (*SIWA ErrichtungsG*), 4, 3.

<sup>49</sup> See Senate Department for Finance, news release on SIWA from March 3, 2015, <https://www.berlin.de/sen/finanzen/haushalt/nachrichten/artikel.272270.php>.

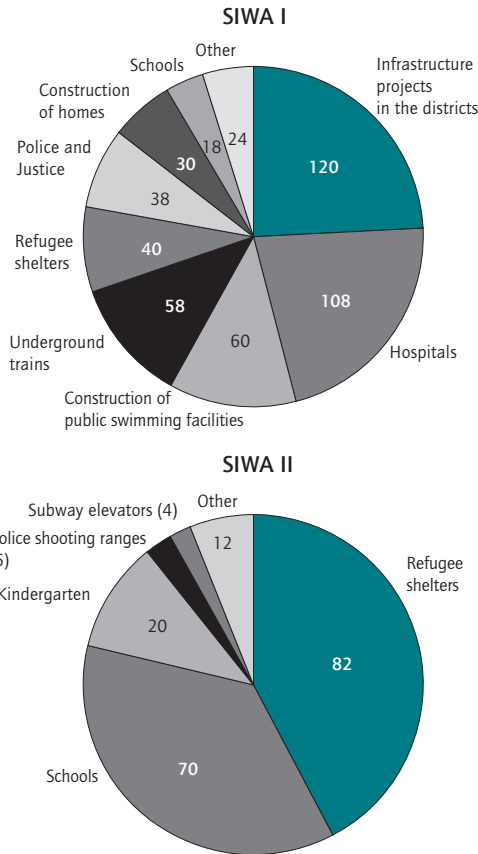
<sup>50</sup> See <https://www.berlin.de/sen/finanzen/haushalt/siwa/siwa-i-2014/artikel.457146.php>, accessed July 5, 2016.

<sup>51</sup> In fact, many shooting ranges owned by the Berlin Police have been closed for years because they are contaminated or need renovation. As a result, firearms' training for Berlin's police force has been limited. See written inquiry to the Berlin House of Representatives, printed paper no. 17/15416.

<sup>52</sup> See Senate Department for Finance, news release, no. 16–002, March 3, 2016 on SIWA II, <https://www.berlin.de/sen/finanzen/presse/pressemitteilungen/pressemitteilung.454452.php>.

Figure 6

**Planned investment programs SIWA I and SIWA II**  
In Mill. Euro



Source: Press release of the Senatsverwaltung für Finanzen.

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Investment program finances multitude of issues, special focus on refugees homes, hospitals and schools.

Despite the available funds, the Berlin Senate and its districts only accessed ten percent of the total amount in 2015. From a budget of 496 million euros, only 48 million has actually been invested. The largest single item is the purchase of underground trains worth around 43 million euros,<sup>53</sup> with delivery scheduled for 2017 and 2018.

<sup>53</sup> Article in the *Tagesspiegel*, confirmed by the Senate Department for Finance according to rbb, <http://www.tagesspiegel.de/berlin/siwa-programm-fuer-infrastruktur-berlin-will-689-millionen-investieren-und-schafftes-nicht/12907980.html>, <http://www.rbb-online.de/politik/beitrag/2016/02/stadt-berlin-und-bezirke-rufen-bisher-nur-zehn-prozent-der-siwa-mittel-ab.html>, accessed July 5, 2016. See also Senate Department for Urban Development and the Environment, Interim Report on the Local Transport Plan 2014 to 2018—incorporating the procurement of new underground trains in financial planning, June 12, 2015, 1677 C, accessed June 22, 2016.

**Conclusion**

The present study reveals a mixed picture of investment activity in Berlin. In particular, the comparison with Hamburg shows that Berlin has a substantial investment gap.<sup>54</sup> There is an enormous investment requirement, primarily in schools and transport. On the other hand, budget surpluses in 2014 and 2015 have provided the financial framework to implement additional projects for the first time ever. The SIWA fund shows that there is a political will for more investment in Berlin’s infrastructure. However, implementation of the measures planned has been slow.

The most urgent requirement is in Berlin’s schools. Here, the investment backlog is almost three times as high as in other federal states in Germany. Schools, as one of the most important locational factors, must be substantially improved—as the findings of the other reports in this issue of *DIW Economic Bulletin* show. Berlin needs a major initiative to close the investment gap in renovating and constructing new school buildings. To ensure the quality of schools, the city must also strive to employ more teachers.

As well as in schools, Berlin is also seriously lagging behind when it comes to investment in the transport infrastructure. Negotiations with Berlin’s Bicycle Referendum initiative give Germany’s capital an opportunity to pave the way for a sustainable solution for the good of the city. In addition, more detailed plans should be outlined to extend the local public transport network in order to take account of the growing population and provide access for more residential areas.

Overall, the housing policy has a crucial role to play. For a city like Berlin with its as yet below-average salary structure (see the second article of this issue *DIW Economic Bulletin*) investment in affordable housing is essential. Furthermore, it forms the basis for maintaining Berlin’s thriving startup and artistic scene (see the third report). The rental brake and the ban on holiday apartments only provide superficial relief and are no substitute for much needed new housing. Berlin must consistently put into practice its planned support for social housing, making the necessary areas available for construction, and working proactively with state-owned housing enterprises. There is no reason why public housing companies should not achieve a reasonable rate of return on their investments in socially responsible housing, using private capital where necessary.

<sup>54</sup> The objective investment requirement and investment efficiency cannot be measured and were therefore not included in the present report.

Berlin has a number of problem areas that need tackling urgently. Implementing these investment measures purposefully and quickly will not only require additional personnel but also a change in administrative practices. When preparing the data for this report, it was apparent that the budget lacks transparency. A consistent transition from cameralistic to double-entry bookkeeping would help here. In addition, the double-entry bookkeeping system provides a consistent evaluation of all assets held thus allowing investment gaps to be readily determined.

Moreover, organization according to content-related units is recommended in order to avoid duplicating responsibilities. Individual areas of administration could be re-organized as either special funds or as a public enterprise each with its own personnel and extensive rights to assert claims. The best example of this is Grün Berlin GmbH. The special fund set up in Hamburg for school property shows what a model of this type is able to achieve.

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