



**KOMMUNINVEST**  
**LOCAL GOVERNMENT**  
**INVESTMENTS 2014**

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# Foreword

Alongside the county councils, Sweden's municipalities are the country's largest financiers and producers of welfare services, that is, services in the areas of healthcare, care and education. Municipal operations also encompass libraries, environmental and health protection, sanitation and waste, water and sewerage, municipal transportation and building matters. Beyond these compulsory duties, many municipalities are also actively involved in the local supply of housing, properties and energy through municipal companies.

The broad assignment of the municipalities is clearly reflected in the scale of their investments, which amount to some SEK 90 billion annually. Investments are made in the streets and roads that make it possible to travel within the municipality; in service facilities that enable the provision of childcare, education and care of the disabled and elderly; in new homes for a growing population; in treatment plants that guarantee the local water supply and in the production and distribution of district heating to homes and businesses. Consequently, the municipalities' investments target the core of welfare services. This is an important insight to keep in mind, since the debate on municipal investment sometimes tends to focus on multi-sport arenas and swimming facilities.

Swedish municipalities are currently experiencing a period of considerable need for new investment. At the same time, ageing existing infrastructure needs upgrading. This report is a result of Kommuninvest's<sup>1</sup> on-going review and monitoring of the local government sector's financial activities. By analysing the investments from a Group perspective, i.e. including municipal operations conducted through companies, a comprehensive view of the municipalities' investments is taken. Among other things, Kommuninvest's analysis shows that:

- the municipalities' investments rose by an average 3 percent per year, in real terms, between 2007 and 2012. The rate of increase was higher than that for investment in business and industry.
- In 2012, the average level of investment was SEK 9,500 kronor per inhabitant and year, although the variation between different municipalities was considerable.
- the level of investment per inhabitant tends to be higher in municipalities and counties with high population growth, sizeable corporate spheres and high equity/assets ratios.



Tomas Werngren  
*President*



Mattias Bokenblom  
*Head of Research*

1) Kommuninvest is the largest lender to the Swedish local government sector. The Kommuninvest Group comprises the owner organisation, the Kommuninvest Cooperative Society and its wholly-owned credit market company, Kommuninvest i Sverige AB ("Kommuninvest"), including the subsidiary Kommuninvest Fastighets AB.

# 1. Introduction: Comparing apples with apples

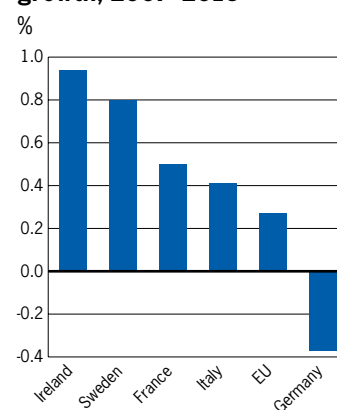
The Swedish local government sector, with its 290 municipalities, is a heterogeneous group in terms of demographic, geographic and economic conditions. These differences hamper the making of fair comparative economic studies, particularly with regard to investment.

How municipalities choose to organise their operations also represents a challenge when it comes to making comparisons between different municipalities. In most municipalities, for example, the ownership of operational properties lies directly with the municipality, with property management being conducted by the municipal property board or the municipal facilities board. One tendency, however, is for an increasing number of municipalities to transfer their operational properties to a wholly-owned subsidiary. A third alternative is for the authority to rent operational premises from private property owners.

In the first case, investments in new schools, pre-schools and sheltered housing end up in the authorities' cash flow statements, while in the second case, investments of the same type end up in the municipal corporation's cash flow statement. In the third case, the investment affects the private company's cash flow while the rental cost appears in the municipality's income statement.

To be able to capture all investments by a municipality, that is, including investments by municipally-owned companies, the analyses in this report are made from the perspective of the municipal corporation. However, in order not to be misleading, this requires that the analysis take into account the considerable variation between municipalities in terms of the number and size of their municipally-owned companies. Regardless of the approach applied in comparing investments between different municipalities, a certain degree of caution is necessary. Observers could otherwise easily find themselves comparing apples with pears.

Figure 1  
**Average annual population  
growth, 2007–2013**



In Sweden, the population is growing faster than in most other EU countries, including the neighbouring Nordic countries. In Denmark and Finland, for example, population growth between 2007 and 2013 was below 0.5 per cent annually, compared with 0.8 per cent in Sweden.

Source: Eurostat

# 2. Municipal investments

Between 2007 and 2012, when Sweden and the rest of the world experienced the deepest financial crisis since the 1930s, the municipalities' investments in tangible fixed assets grew by SEK 12.3 billion in real terms<sup>2</sup>, from SEK 78.2 billion in 2007 to SEK 90.5 billion in 2012 (see Figure 2). That was equivalent to an average increase of 3 percent annually. By comparison, according to Statistics Sweden, investment volumes in private business and industry in 2012 were only marginally higher than in 2007. The county councils' investments are detailed on page 7 in *Fact box 2*.

Sweden's municipalities are currently in a phase of intensive investment. A number of circumstances are driving this trend:

- Infrastructure built in the 1970s is now worn and in need of upgrading or replacement.
- Sweden's population is growing rapidly. Positive growth in birth rates, combined with more people immigrating to Sweden than emigrating, meant that in 2013 alone, the population grew by 88,971 individuals, or 0.93 percent.
- In an international perspective, the degree of urbanisation in Sweden has been relatively low<sup>3</sup>. In recent years, however, urbanisation has increased faster in Sweden than in other countries. People are leaving rural areas to the benefit of towns, and they are leaving smaller towns to the benefit of larger towns and cities. Combined, this means that the metropolitan cities, larger cities and town adjacent to metropolitan or large cities are growing strongly.

To be able to meet the current and future welfare service needs of this growing population, actors in the local government sector invest continuously in areas including infrastructure, housing, public transport, equipment, service and operations premises.

### Investment by municipal category and at the municipal level

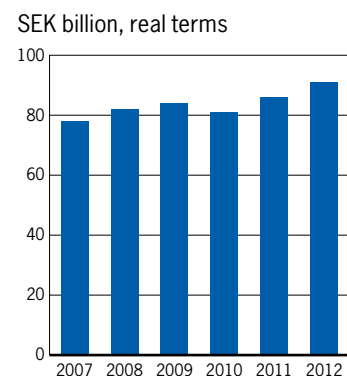
Considering the municipalities as a whole, the pace of increase in investment has been relatively stable over time, although it decreased somewhat in 2010. However, at the level of individual municipalities, particularly those with small or medium-sized populations, investment can vary considerably from year to year, as it also can at the municipal category level. For a small municipality, for example, building a new primary school may entail a substantial increase in the level of investment over a couple of years, with this then falling back to more average level.

### Fact box 1 Urbanisation

The degree of urbanisation in Sweden, that is the proportion of people living in densely populated regions, is lower than in many comparable countries, although, the urbanisation process, the rate at which people are moving to more densely populated regions, is currently among the fastest in Europe. Based on Statistics Sweden's population forecasts, this process will continue for the foreseeable future. Metropolitan municipalities, large cities and suburban municipalities are expected to grow considerably faster than other municipalities, meaning that a larger proportion of the population will live in densely populated regions.

Source: Eurostat and Statistics Sweden

Figure 2  
Municipal investments  
2007–2012



2) The reference year for all time series is 2012

3) Source: Eurostat

For individual municipalities or categories of municipalities, demonstrating investment trends based on an individual year is risky. Consequently, this report presents investments, both among individual municipalities, as well as at the level of municipal category, as an average for the period studied (2007–2012). To facilitate comparisons between different municipalities and municipal categories, investments are reported per inhabitant. The categorisation of municipalities is based on the definition applied by the Swedish Association of Local Authorities and Regions, SALAR, *see Appendix 2*.

For Sweden as a whole, municipal investment amounts to approximately SEK 9,000 per inhabitant and year. At the level of municipal category, three categories of municipalities stand out (*see Figure 3*). Metropolitan municipalities and Large cities have significantly higher levels of investment than other municipal categories – at SEK 12,800 per inhabitant and year, compared with SEK 10,300. The lowest level of investment is found in the Sparsely populated municipalities with investment averaging SEK 4,200 per inhabitant and year. Other municipal categories are relatively well grouped with an annual investment level of SEK 6,000 to SEK 7,500 per inhabitant.

When the investments are broken down at the municipal level, the picture from the level of municipal category is reinforced. *Table 1* shows the distribution of annual investment volumes between municipal categories. It is apparent that Sparsely populated municipalities generally have lower investment than other municipalities, while Metropolitan municipalities and Larger cities generally have higher levels of investment than other municipalities – half of all municipalities with annual investment exceeding SEK 10,000 per inhabitant are to be found in the municipal categories Metropolitan municipalities and Large cities. Among other municipal categories, the most striking result is how wide a spread there is between the different municipalities in a particular category.

Figure 3  
Average investment volume per inhabitant and year, 2007–2012  
SEK

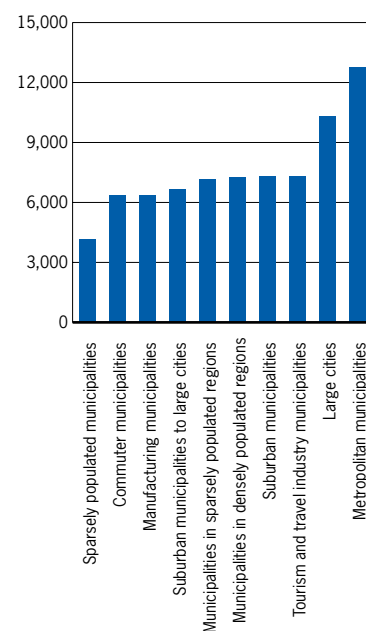


Table 1  
Distribution of investments and municipality categorisation

Municipal category

Investment per inhabitant	Sparsely populated municipalities	Municipalities in sparsely populated regions	Municipalities in densely populated regions	Manufacturing municipalities	Tourism and travel industry municipalities	Commuter municipalities	Suburban municipalities to large cities	Suburban municipalities	Large cities	Metropolitan municipalities
<SEK 4,000	11	2	4	11	2	17	2	4		
4,000–5,999	7	5	15	21	2	20	10	11		
6,000–7,999	2	6	7	14	9	10	5	14	9	1
8,000–9,999		2	6	7	6	1	2	6	10	
>10,000		1	3	1	1	3	3	3	12	2

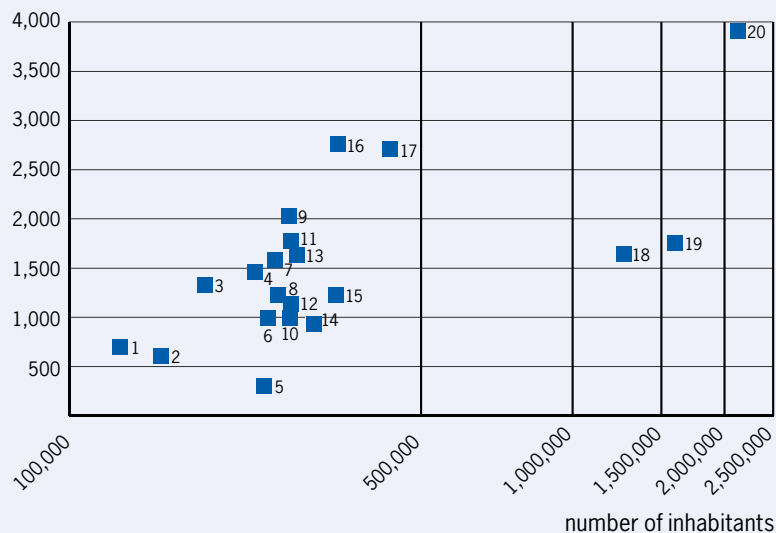
Fact box 2

**County councils' total investments**

The county councils and regions' combined investments in 2012 amounted to nearly SEK 20 billion. Individually, Stockholm County Council invested most, accounting for 43 percent of total investment. The greater the population of a county/region is, the greater the investments and the more that is invested per inhabitant.

**Investment per inhabitant and by size of population**

SEK per inhabitant



**County council**

- |                   |                     |
|-------------------|---------------------|
| 1. Jämtland       | 11. Dalarna         |
| 2. Blekinge       | 12. Gävleborg       |
| 3. Kronoberg      | 13. Örebro          |
| 4. Kalmar         | 14. Halland         |
| 5. Västernorrland | 15. Jönköping       |
| 6. Norrbotten     | 16. Uppsala         |
| 7. Västmanland    | 17. Östergötland    |
| 8. Västerbotten   | 18. Skåne           |
| 9. Värmland       | 19. Västra Götaland |
| 10. Södermanland  | 20. Stockholm       |

*Region Gotland is not included in the table.*

# 3. Driving forces behind the investments

In a study of investment volumes in different municipal categories (see *Table 1*) it is tempting to draw the conclusion that the more inhabitants a Swedish municipality has, the more the municipality invests per inhabitant. However, the differences in investment volume between different municipalities are not solely due to the size of the municipality, but also to differences in economic and demographic conditions. As *Table 2* shows, both population growth and financial outcomes have co-varied positively with investment volume in Sweden over the period 2007–2012.

The correlation between increasing population and a higher pace of investment has previously been established in international research. In studies of US municipalities, Helen F. Ladd (1992, 1994)<sup>4</sup> has been able to demonstrate that increasing population also results in increasing investment. However, Ladd found no correlation between population growth and increased public expenditure.

In Sweden, Jonas Fjertorp's (2012)<sup>5</sup> analysis of the change in Swedish municipalities' fixed assets between 1999 and 2008 shows that high population growth, high initial equity/assets ratios and high tariffs affect growth in the volume of fixed assets positively, while large volumes of fixed assets per inhabitant at the start of the period result in a lower rate of growth; that is, a negative correlation.

Fjertorp subscribes to the opinion that municipalities with high population growth need to increase the volume of their fixed assets to be able to meet a growing population's need for welfare services. A high equity/assets ratio reflects good long-term payment capacity and, according to Fjertorp, this indicates that the municipality has the financial scope to implement investments, even using borrowed funds, without incurring financial imbalances. Raised rates, for municipal water for example, generate positive cash flow that can be used to finance an increase in the volume of fixed assets.

When it comes to the negative correlation between the volume of fixed assets and its growth, Fjertorp argues that municipalities with relatively large volumes of fixed assets per inhabitant can elect to utilise their existing infrastructure more efficiently as needs increase, when the population grows for example, rather than needing to make major investments. This could explain why these municipalities increase their assets at a slower pace than municipalities with small volumes of fixed assets.

## Fact box 3

### Municipal corporations with the highest levels of investment in 2007–2012

Average investment volume per inhabitant and year, SEK

1	Östersund	16,750
2	Södertälje	15,960
3	Skellefteå	15,640
4	Stockholm	14,430
5	Lessebo	14,300
6	Arboga	14,180
7	Umeå	14,090
8	Kumla	13,420
9	Örnsköldsvik	12,590
10	Trosa	12,250

Source: Kommuninvest

## Fact box 4

### Municipalities with highest and lowest population growth, 2007–2012

	Strongest increase	Annual change	Strongest decrease	Annual change
1	Sundbyberg	3.3%	Åsele	-2.1%
2	Solna	2.3%	Överkalix	-1.6%
3	Sigtuna	2.3%	Ånge	-1.5%
4	Stockholm	2.0%	Storfors	-1.4%
5	Lomma	2.0%	Dorotea	-1.4%
6	Nacka	1.9%	Bräcke	-1.3%
7	Huddinge	1.9%	Sorsele	-1.3%
8	Knivsta	1.9%	Övertorneå	-1.2%
9	Malmö	1.8%	Hagfors	-1.2%
10	Vallentuna	1.8%	Mellerud	-1.2%

Six of Sweden's ten fastest-growing municipalities are located in the County of Stockholm. Six of the ten municipalities with the lowest population growth are categorised as sparsely populated municipalities by SALAR.

4) Helen F. Ladd's articles were published in *Urban Studies and Regional Science and Urban Economics*.

5) Jonas Fjertorp's article was published in *Journal of Finance and Management in Public Services*.



Table 2

**Population growth, financial outcome and population growth 2007–2012**

Size of municipality	Number municipalities*	Average population growth in percent, 2007–2012	Average outcome per inhabitant, SEK, 2007–2012	Average investment volume per inhabitant, SEK, 2007–2012
<10,000 inhabitants	74	-3.2	610	4,590
10,000–19,999 inhabitants	94	-0.1	970	5,830
20,000–49,999 inhabitants	74	2.5	1,490	7,040
50,000–99,999 inhabitants	33	4.8	2,050	9,030
100,000–199,999 inhabitants	10	5.6	2,390	10,050
>200,000 inhabitants	3	9.0	3,340	11,260

\*) The municipalities of Sorsele and Åre are not included due to lack of data on investments.

### Fixed assets and population growth drive municipal investment

*Kommuninvest's analysis of the variables that drive municipal investment at the corporation level largely confirm the results presented in earlier studies. The single most important variables in explaining the large differences in investment level between different municipalities are:*

- (i) *the volume of existing fixed assets in the municipal companies per inhabitant, and*
- (ii) *population growth in the municipality.*

For the vast majority of Sweden's municipalities, there is a clear positive correlation between population growth and the level of investment in the municipal corporation. In general, it is also the case that the larger the sphere of companies in a municipal corporation, the higher the level of investment<sup>6</sup>.

The regression analysis carried out by Kommuninvest shows that each additional SEK 1,000 in assets per inhabitant in the municipal companies in 2007 led to an increase in investment of slightly less than SEK 100 per inhabitant and year over the ensuing years. Over the five-year period 2007 to 2012, an increase in population growth of 1 percent is expected to increase investment by SEK 200 per inhabitant and year. The equity/assets ratio also correlates positively with the level of investment. On average, a 1 percent higher equity/assets ratio in 2007 increases the investment level per inhabitant and year by slightly more than SEK 30 over the ensuing five years. Conversely, no correlation can be established between the municipal corporation's outcome and investment volume.

The significance of population growth, the scope of the company sphere and the equity/assets ratio on the investment level in a municipality may appear marginal. However, since the spread in each variable (*see Table 6*) is so great between different municipalities, this can nonetheless lead to sizeable differences in expected investment level.

6) *The scope of the company sphere has been estimated based on the scale of the companies' assets per inhabitant at the start of the analysis period, i.e. in 2007.*

➔ An in-depth presentation of Kommuninvest's analysis can be found on pages 13–14.

# 4. Investment account

Of the municipalities' combined gross investments in tangible fixed assets of about SEK 90 billion in 2012, the municipalities themselves accounted for SEK 42 billion, while municipal companies accounted for SEK 48 billion. To identify the types of investments made, Kommuninvest had 80 municipalities' annual accounts reviewed in detail, including the 50 largest municipalities in terms of population and a random selection of 30 small and medium-sized municipalities. Based on investment accounts from the municipalities' annual accounts and the municipal companies' annual reports, investments made at the board and company level have been compiled. Investments have then been sorted into six principal categories<sup>7</sup>:

- Infrastructure, including roads, streets, roundabouts and car parks
- Water/sewerage
- Properties, including service properties, office and industrial premises, and sports facilities
- Housing
- Energy companies
- Others, including equipment, machinery, vehicles, ports, build-out of fibre-optic networks and emergency services

A summary of the investments in the 80 municipalities analysed is presented in *Table 4* on the next page.

Table 3  
Investments in 80 select municipalities

Municipal category	Population million inhabitants (% of total)	Investments in SEK billion (% of total)	Investment per inhabitant in SEK	Companies' investments as proportion of the total
The 50 largest municipalities	5.63 (59)	62.8 (69)	11,158	58%
Selection of 30 municipalities	0.46 (5)	2.9 (3)	6,241	53%
Other small and medium-sized municipalities	3.46 (36)	27.5 (27)	7,164	41%
All municipalities	9.56 (100)	90.5 (100)	9,467	53%

7) Sweden's municipalities have considerable independence in determining how they organise their operations. This contributes to an organisational diversity that tends to hinder the process of totalling the investments in the relevant principal category. The remodelling of a town or city hall can, for example, be the responsibility of the property board, the executive committee or the municipal company that is responsible for all of the municipality's properties. Investments in, for example, optic-fibre networks and water/sewerage may be the responsibility of the technical board, a separate company or the municipality's energy company.

Slightly less than six out of ten inhabitants in Sweden live in one of the 50 largest municipalities. The largest municipalities are not representative of the sector as a whole since both the investments and the proportion of total investment implemented by the municipal companies are considerably higher than in other municipalities. Nonetheless these municipalities provide a good picture of the composition of municipal investments, since they account for nearly 70 percent of the total investments. The municipalities in the selection of 30 small and medium-sized municipalities have a lower level of investment per inhabitant but a higher proportion of company investment than other comparable municipalities.

The largest municipalities invest more in infrastructure, properties and energy companies, and less in water/sewerage, housing and others than the selection of 30 small and medium-sized municipalities, *see Table 4 and Figures 4–6*. However, the differences are not statistically relevant.

Together, the areas of properties, housing and infrastructure account for slightly less than two thirds, 64 percent, of the local government sector's combined investments, corresponding to SEK 58 billion in 2012. About half of Sweden's municipalities are sole or part owners of an energy company and investments in these companies amounted to slightly more than SEK 13 billion<sup>8</sup>, which is slightly less than the municipalities' total investment in, for example, vehicles, machinery, IT equipment and other equipment. In addition, the municipalities invested about SEK 6 billion in water/sewerage<sup>9</sup>.

Table 4  
What do the municipalities invest in?

Municipal category	Infra-structure	Water/Sewer-age	Prop-erties	Hous-ing	Energy com-pa-nies	Other	Total
The 50 largest municipalities	21	5	20	24	17	13	100
Selection of 30 municipalities	16	10	18	27	11	21	100
All municipalities*	20	7	19	25	15	16	100

\*) *Kommuninvest's calculations.*

Figure 4  
50 largest municipalities – distribution of investment in 2012

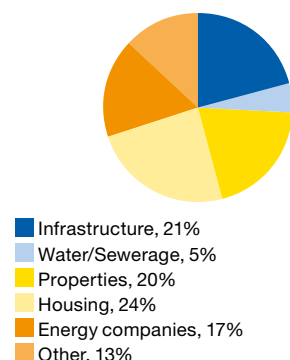


Figure 5  
30 small and medium-sized municipalities – investment distribution 2012

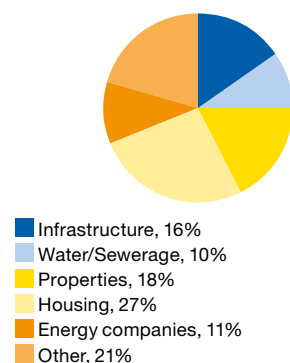
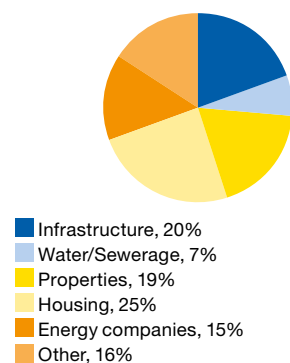


Figure 6  
All municipalities\* – distribution of investment in 2012



\*) *Kommuninvest's calculations.*

8) *Some municipal energy companies are also responsible for the municipality's water and sewerage system and part of the investments reported in the energy category should thus be included under water/sewerage.*

9) *See Note 8.*

Kommuninvest had the 2012 annual accounts of 80 municipalities' reviewed in detail, including the 50 largest municipalities in terms of population and a random selection of 30 small and medium-sized municipalities. This data provides the basis for an estimation of how investments among Sweden's total 290 municipalities are distributed between different areas.

## Analysis of municipal swimming facility projects in progress

In 2012, the Timbro think tank published its report *Swimming facility boom – Carelessness and wastefulness as municipalities build for billions*<sup>10</sup>. The report had a considerable impact and influenced the debate regarding how the municipalities prioritise the different needs of their inhabitants.

Many municipal swimming facilities around the country were built in the 1970s and are in considerable need of renovation. However, renovating and remodelling existing swimming facilities is highly costly and some municipalities have instead chosen to build completely new facilities. To gain an understanding of the scale of the amounts being invested in swimming facilities in particular, Kommuninvest reviewed the 50 largest municipalities' completed, on-going and future swimming facility projects from 2010<sup>11</sup> and onwards, *see Table 5*.

Table 5  
**Swimming facility projects by project status and cost**

<b>Cost</b>	<b>Completed</b>	<b>On-going</b>	<b>Planned</b>
<SEK 200 million	3	2	5
SEK 200–400 million	3	3	7
>SEK 400 million	1		1
<b>Total</b>	<b>7</b>	<b>5</b>	<b>13</b>

The table shows that half of all of the municipalities reviewed have completed, are building or are planning to build a new swimming facility or adventure pool. A tally of the reported investment calculations shows the total investment volume to amount to nearly SEK 6 billion, divided between 25 projects. Ten projects have a budget of less than SEK 200 million, 13 are in the interval SEK 200 million to SEK 400 million and two projects have a budget exceeding SEK 400 million.

The total planned investments – SEK 6 billion – should be considered in relation to the expected total investment volume for the 50 largest municipalities over the ten-year period concerned; 2008–2017<sup>12</sup>. The total investment volume amounts to nearly SEK 600 billion, of which investments in properties are expected to account for SEK 120 billion. In other words, investments in swimming facility projects represent 1 percent of the total expected investments.

10) Report authored by Philip Lerulf.

11) The swimming facility shall have been opened by 2010 or later to be included in the table.

12) For swimming facilities opened in 2010, investment expenditure reaches back to 2008.

## Regression analysis:

# Municipal investment rationale

Kommuninvest's analysis of what drives the differences in investment levels between different municipalities agrees largely with Jonas Fjertorp's study (*see page 8*) in terms of method and selection of variables, although with two significant differences.

- While Fjertorp studies changes in the *bulk* of the municipalities' assets, Kommuninvest's analysis focuses on the variables that affect the level of the municipal corporations' *investments*. The reason is that the level of investment changes more slowly than recognised assets and reflects the municipality's intention to meet citizen's current and future needs of welfare services. Consequently, investments act as a good indicator of both the economic conditions of a municipality and its confidence in the future.
- The analysis is made based on a *corporation* perspective, and also thus includes the investments made by the municipal companies. This helps provide a comprehensive view of the municipality's financial commitment.

The correlation between average investment level per inhabitant in the municipal corporation, the dependent variable, and the variables assumed to explain the differences in investment level between different municipal corporations, the explanatory variable, are analysed by means of multiple regression analysis. The explanatory variables are: population growth in percent between

2007 and 2012; average financial outcome per inhabitant over the years 2007 to 2012; the equity/assets ratio in the municipal corporation in 2007 and the volume of tangible fixed assets per inhabitant in the municipality and the municipal companies respectively. The variables are presented in *Table 6*.

The average Swedish municipality had population growth of 0.6 percent between 2007 and 2012, an outcome of slightly more than SEK 1,200 per year over the same period of time, an equity/assets ratio in 2007 of 36 percent and fixed assets per inhabitant in 2007 amounted to SEK 30,000 and SEK 32,000 in the municipality and municipal corporation respectively. However, the variation between the municipalities in both the dependent and explanatory variables is considerable, as indicated by the high standard deviations<sup>8</sup> and the broad span between the lowest and highest values.

## Results

The results of the regression analysis are presented in *Table 7*. The co-variation between the level of investment per inhabitant and the explanatory variables is captured by what are known as the coefficients. The coefficient states how much the increase in an explanatory variable for a particular unit is expected to change the level of investment<sup>9</sup>.

Table 6  
Variables included in the regression analysis

Variables	Average, 2007–2012	Standard deviation	Min/max for each variable
<b>Dependent variable</b>			
Investment level per inhabitant and year, SEK	6,384	2,760	1,624/16,749
<b>Explanatory variables</b>			
Population growth, %	0.6	4.3	-9.4/16.3
Annual outcome per inhabitant (in SEK thousands)	1.2	1.1	-1.9/8.6
Assets/equity ratio (2007), %	36.5	14.8	-1/75
Municipality's fixed assets per inhabitant in 2007 (in SEK thousands)	29.7	10.8	5.9/64.6
Companies' fixed assets per inhabitant in 2007 (in SEK thousands)	32.2	20.6	0/133.4
<b>Number of observations*</b>	<b>287</b>	<b>287</b>	<b>287</b>

\*) For Gotland, Sorsele and Åre, details are not available regarding either the companies' tangible fixed assets or the municipal corporation's investments.

8) The standard deviation is a measure of variation that states how much an individual municipality's outcome for a certain variable diverges on average from the mean for all municipalities.

9) The regression analysis shows there to be a statistical correlation between different variables but says nothing about what this correlation looks like. Consequently, the results of the analysis should not be taken as evidence of causal correlations.

Table 7

**Results of the regression analysis**

Explanatory variables	Coefficient (standard deviation)
Population growth 2007–2012, %	184.7*** (32.9)
Annual outcome per inhabitant, average 2007–2012 (in SEK thousands)	–41.6 (129.2)
Equity/assets ratio in 2007, %	32.9*** (8.7)
Municipality's fixed assets per inhabitant in 2007 (in SEK thousands)	77.2*** (11.6)
Companies' fixed assets per inhabitant in 2007 (in SEK thousands)	84.0*** (6.8)
<b>Coefficient of determination</b>	<b>0.51</b>
<b>Number of observations</b>	<b>287</b>

\*\*\*) Indicates that the coefficient is statistically significant at the 1-percent level.

From the table, it can be seen that 1 percent higher population growth over five years is expected to result in the level of investment rising by SEK 185 per inhabitant and year. Since population growth over a five-year period can vary considerably between different municipalities (see Table 6 and Fact box 4), this is one of the single most significant variables in explaining the observed differences in investment levels between different municipal corporations. Consequently, the results confirm earlier studies showing a positive correlation between population growth and investment.

The analysis also shows that the municipal corporation's initial wealth at the start of the period correlates positively with the subsequent level of investment. A 1 percent higher equity/assets ratio in 2007 is expected to increase the annual investment level per inhabitant by SEK 33 over the ensuing years. Although this may appear to be a marginal effect, it means that a municipal corporation with a 15 percentage point higher equity/assets ratio than another municipality is expected to invest nearly SEK 500 more per inhabitant and year. The results indicate that wealthy municipalities invest more per inhabitant than smaller, less wealthy municipalities.

It is worth noting how the volume of fixed assets per inhabitant in a municipality and in the municipal companies respectively correlates with the investment level. As can be seen in Table 7, an SEK 1,000 higher volume of fixed assets per inhabitant in 2007 in the municipality gives an expected increase in the level of investment over the ensuing years by SEK 77 per inhabitant and year. The corresponding figure for the volume of fixed assets in the municipal companies is SEK 84 per inhabitant and year. The positive correlation is explained by the fact that municipal corporations with sizeable asset values (regardless of whether these are in the municipality itself or in the municipal

companies) also have considerable depreciation and amortisation. These corporations must therefore make considerable investments per inhabitant simply to keep the volume of fixed assets per inhabitant constant. Since the differences in the volume of fixed assets per inhabitant in the municipal corporations is considerable (see the standard deviation in Table 6), the companies' fixed assets per inhabitant are a particularly significant variable in explaining the differences in investment levels between different municipalities.

There is no statistical support for the average outcome per year over the period 2007–2012 having any effect on the level of investment over the same period.

The coefficient of determination for the regression analyses in Table 7 is 0.51. This means that a combined 51 percent of the variation that exists between the different municipalities with regard to the level of investment is explained by the explanatory variables. The remaining 49 percent is explained by other variables that are not included in the analysis, including political decisions and priorities.

**Sensitivity analysis**

A review of individual municipalities' investments shows that certain groups of municipalities diverge from the correlation between population growth and investment. This applies to:

- small and medium-sized municipalities with neutral or negative population growth, outside the metropolitan counties but with relatively large municipal companies. These municipalities show high levels of investment despite low population growth.
- small and medium-sized municipalities in the metropolitan counties with positive population growth but with relatively small companies. These municipalities have lower levels of investment than could be expected based on their population growth.

## Appendix 1

# Investment level by municipality

### Annual average investments per inhabitant over the period 2007–2012

#### <SEK 4,000

Aneby	Grums	Hudiksvall	Munkedal	Sala	Timrå	Vansbro	Åtvidaberg
Bjurholm	Gullspång	Kungsör	Munkfors	Storuman	Tomelilla	Vaxholm	Öckerö
Bjuv	Götene	Laxå	Norberg	Strömsund	Torsby	Vilhelmina	Östra Göinge
Ekerö	Hallstahammar	Lidingö	Nordanstig	Sunne	Töreboda	Vindeln	
Fagersta	Heby	Mark	Nordmaling	Svenljunga	Uppvidinge	Vingåker	
Gagnef	Herrljunga	Mellerud	Ragunda	Säter	Vadstena	Vårgårda	
Gnosjö	Hjo	Mullsjö	Robertsfors	Tierp	Valdemarsvik	Ånge	

#### SEK 4,000–5,999

Ale	Eda	Habo	Kil	Ljusnarsberg	Salem	Svedala	Åstorp
Arvidsjaur	Enköping	Hallsberg	Kinda	Malå	Simrishamn	Säffle	Ålvkarleby
Askersund	Eslöv	Haninge	Klippan	Markaryd	Sjöbo	Tibro	Ålvsbyn
Avesta	Essunga	Haparanda	Kramfors	Motala	Skara	Tidaholm	Ödeshög
Bengtstors	Falköping	Hofors	Krokoms	Norsjö	Skinnskatte- berg	Torsås	Örkelljunga
Bollebygd	Filipstad	Hultsfred	Kävlinge	Nynäshamn	Smedjebacken	Ulricehamn	Osthammar
Boxholm	Finspång	Hylte	Köping	Nässjö	Sollefteå	Vallentuna	Överkalix
Bromölla	Flen	Håbo	Laholm	Ockelbo	Stenungsund	Vara	Övertorneå
Burlöv	Färgelanda	Hällefors	Lekeberg	Oskarshamn	Storfors	Vännäs	
Dals-Ed	Gislaved	Högsby	Leksand	Ovanåker	Surahammar	Ydre	
Danderyd	Gnesta	Jokkmokk	Lilla Edet	Pajala	Svalöv	Åmål	
Degerfors	Grästorp	Karlsborg	Ljusdal	Perstorp		Årjäng	

#### SEK 6,000–7,999

Alingsås	Emmaboda	Härryda	Kungsbacka	Mjölby	Orsa	Söderköping	Vänersborg
Alvesta	Eskilstuna	Hässleholm	Kungälv	Mora	Orust	Tjörn	Värnamo
Arjeplog	Falun	Höganäs	Lerum	Mönsterås	Osby	Tranemo	Åsele
Arvika	Forshaga	Järfälla	Lindesberg	Mörbylånga	Rättvik	Tranås	Ålmhult
Boden	Gotland	Kalix	Ljunby	Nacka	Skurup	Tyesö	Ålvdalen
Borgholm	Gällivare	Kalmar	Ludvika	Nora	Solna	Täby	Ängelholm
Borås	Hagfors	Karlshamn	Lycksele	Norrköping	Staffanstorps	Upplands-Bro	Österåker
Bräcke	Hammarö	Karlskrona	Lysekil	Norrälje	Strömstad	Vaggeryd	
Båstad	Hedemora	Knivsta	Malmö	Nyköping	Sundsvall	Vellinge	
Eksjö	Härnösand	Kristinehamn	Mariestad	Olofström	Söderhamn	Vetlanda	

#### SEK 8,000–9,999

Berg	Huddinge	Karlstad	Malung-Sälen	Piteå	Sotenäs	Trelleborg	Värmdö
Bollnäs	Härjedalen	Katrineholm	Nybro	Ronneby	Sävsjö	Trollhättan	Västervik
Botkyrka	Höör	Kristianstad	Nykvarn	Sandviken	Sölvesborg	Uddevalle	Västerås
Dorotea	Jönköping	Lidköping	Oxelösund	Skövde	Tanum	Varberg	Växjö
Falkenberg	Karlskoga	Lomma	Partille	Sollentuna	Tingsryd	Vimmerby	Örebro

#### >SEK 10,000

Arboga	Halmstad	Kumla	Luleå	Skelefteå	Södertälje	Uppsala
Borlänge	Helsingborg	Landskrona	Lund	Stockholm	Trosa	Ystad
Gävle	Hörby	Lessebo	Mölnådal	Strängnäs	Umeå	Örnköldsvik
Göteborg	Kiruna	Linköping	Sigtuna	Sundbyberg	Upplands Väsby	Östersund

The municipalities of Sorsele and Åre are not included in the table due to data on investments not being available.

## Appendix 2

# SALAR's categorisation of municipalities

### Metropolitan municipalities

Number: 3

Municipalities with a population exceeding 200,000 inhabitants

Gothenburg                      Malmö                      Stockholm

### Suburban municipalities to large cities

Number: 38

Municipalities where more than 50 percent of the night-time population commutes to work in another municipality. The most common commuter destination should be one of the metropolitan municipalities.

Ale	Håbo	Lomma	Solna	Vallentuna
Bollebygd	Härryda	Möndal	Staffanstorp	Vaxholm
Botkyrka	Järfälla	Nacka	Sundbyberg	Vellinge
Burlöv	Kungsbacka	Nynäshamn	Svedala	Värmdö
Danderyd	Kungälv	Partille	Tyresö	Öckerö
Ekerö	Lerum	Salem	Täby	Österåker
Haninge	Lidingö	Skurup	Upplands Väsby	
Huddinge	Lilla Edet	Sollentuna	Upplands-Bro	

### Large cities

Number: 31

Municipalities with 50,000–200,000 inhabitants and an urbanisation level exceeding 70 percent.

Borås	Jönköping	Lund	Trollhättan	Örebro
Eskilstuna	Kalmar	Norrköping	Uddevalla	Örnsköldsvik
Falun	Karlskrona	Nyköping	Umeå	Östersund
Gävle	Karlstad	Skellefteå	Uppsala	
Halmstad	Kristianstad	Skövde	Varberg	
Helsingborg	Linköping	Sundsvall	Västerås	
Hässleholm	Luleå	Södertälje	Växjö	

### Suburban municipalities to large cities

Number: 22

Municipalities where more than 50 percent of the night-time population commutes to work in another municipality. The most common commuter destination should be a municipality in the large cities group.

Bjuv	Habo	Knivsta	Nykvärn	Åstorp
Eslöv	Hammarö	Kumla	Sjöbo	Älvkarleby
Forshaga	Hörby	Kävlinge	Söderköping	
Gnesta	Höör	Lekeberg	Timrå	
Grästorp	Kil	Mörbylånga	Trosa	

### Commuter municipalities

Number: 51

Municipalities where more than 40 percent of the night-time population commutes to another municipality.

Alingsås	Hallstahammar	Nora	Strängnäs	Vänersborg
Alvesta	Heby	Norberg	Surahammar	Vännäs
Aneby	Hjo	Ockelbo	Svalöv	Ydre
Bjurholm	Höganäs	Orsa	Säter	Åtvidaberg
Boxholm	Högsby	Orust	Tibro	Ängelholm
Bromölla	Klippan	Osby	Tjörn	Ödeshög
Degerfors	Krokom	Sigtuna	Tomelilla	Östra Göinge
Essunga	Kungsör	Skinnskatteberg	Trelleborg	
Färgelanda	Lessebo	Smedjebacken	Vadstena	
Gagnef	Mullsjö	Stenungssund	Vingåker	
Hallsberg	Munkedal	Storfors	Värgårda	



**Tourism and travel industry municipalities****Number: 20**

Municipalities where the number of nights spent by guests at hotels, hostels and campsites exceeds 21 per inhabitant, or where the number of leisure homes exceeds 0.20 per inhabitant.

Arjeplog	Dorotea	Lysekil	Sotenäs	Valdemarsvik
Berg	Gotland	Malung-Sälen	Storuman	Åre
Borgholm	Härjedalen	Norrtälje	Strömstad	Älvdalen
Båstad	Jokkmokk	Rättvik	Tanum	Östhammar

**Manufacturing municipalities****Number: 54**

Municipalities where 34 percent or more of the night-time population between the ages of 16 and 64 are employed in manufacturing and extraction, energy and the environment, or building operations (SNI2007).

Arboga	Grums	Laxå	Olofström	Tranemo
Arvika	Gullspång	Lindesberg	Oskarshamn	Tranås
Asksund	Gällivare	Ljungby	Ovanåker	Töreboda
Avesta	Götene	Ljusnarsberg	Oxelösund	Uppvidinge
Bengtstors	Hagfors	Ludvika	Perstorp	Vaggeryd
Emmaboda	Herrljunga	Malå	Sandviken	Vara
Fagersta	Hofors	Markaryd	Sävsjö	Vetlanda
Filipstad	Hultsfred	Munkfors	Tidaholm	Vimmerby
Finspång	Hylte	Mönsterås	Tierp	Värnamo
Gislaved	Karlskoga	Norsjö	Tingsryd	Örkelljunga
Gnosjö	Köping	Nybro	Torsås	

**Sparsely populated municipalities****Number: 20**

Municipalities with an urbanisation level of less than 70 percent and less than eight inhabitants per square kilometre.

Bräcke	Nordmaling	Sollefteå	Vansbro	Årjäng
Dals-Ed	Pajala	Sorsele	Vilhelmina	Åsele
Ljusdal	Ragunda	Strömsund	Vindeln	Överkalix
Nordanstig	Robertsfors	Torsby	Ånge	Övertorneå

**Municipalities in densely populated regions****Number: 35**

Municipalities with more than 300,000 people within a radius of 112.5 kilometres.

Borlänge	Hällefors	Landskrona	Motala	Säffle
Eksjö	Karlsborg	Leksand	Nässjö	Sölvesborg
Enköping	Karlshamn	Lidköping	Ronneby	Ulricehamn
Falkenberg	Katrineholm	Mariestad	Sala	Västervik
Falköping	Kinda	Mark	Simrishamn	Ystad
Flen	Kristinehamn	Mellerud	Skara	Åmål
Hedemora	Laholm	Mjölby	Svenljunga	Älmhult

**Municipalities in sparsely populated regions****Number: 16**

Municipalities with less than 300,000 people within a radius of 112.5 kilometres.

Arvidsjaur	Haparanda	Kiruna	Piteå
Boden	Hudiksvall	Kramfors	Sunne
Bollnäs	Härnösand	Lycksele	Söderhamn
Eda	Kalix	Mora	Älvsbyn

Source: Swedish Association of Local Authorities and Regions (SALAR)

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*The Swedish Local Government Debt Office*

Postal address: P.O. Box 124, SE-701 42 Örebro, Sweden. Visitors: Fenix House, Drottninggatan 2, Örebro.  
Telephone: +46 (0)10-470 87 00. Telefax: +46 (0)19-12 11 98. E-mail: [forename.surname@kommuninvest.se](mailto:forename.surname@kommuninvest.se)  
[www.kommuninvest.org](http://www.kommuninvest.org)