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Presenting growth rates in press release texts: the Dutch case

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Heavily inspired by

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Remarks:

The views expressed in this paper are those of the author and do not necessarily reflect the policies of Statistics Netherlands.

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1. Objective

Statistics Netherlands pursues an internal policy for presenting growth rates in press release texts. One aspect of this policy is the use of the twin concepts *higher/lower* for the presentation of Year-on-Year growth rates and *increase/decrease* for Month-on-Month or Quarter-on-Quarter growth rates. This paper explains the principles behind these agreements and Statistics Netherlands' internal recommendations for the presentation of growth rates.

2. Definitions

Define $I_{y,m}$ as an index for the year y and the month m , for example of Industrial production index. For calculation purposes, define $I_{y,0} = I_{y-1,12}$. Now, the Year-on-Year (YoY) growth rate of this index is defined as:

$$P_{YoY,y,m} = \frac{I_{y,m} - I_{y-1,m}}{I_{y-1,m}} * 100$$

The Month-on-Month growth rate is defined as:

$$P_{MoM,y,m} = \frac{I_{y,m} - I_{y,m-1}}{I_{y,m-1}} * 100$$

3. Analysis for Year-on-Year growth rates

This section presents an analysis for the selection of the most suitable twin concept, *higher/lower* or *increase/decrease*, for the presentation of Year-on-Year growth rates in press release texts. It gives a reasoning for *increased* and *higher*. An analogous case can be given for *decreased* and *lower*.

The Year-on-Year growth rate for January 2001 is defined as:

$$P_{YoY,y,m} = \frac{I_{2001,1} - I_{2000,1}}{I_{2000,1}} * 100$$

Two indices are used in this calculation. The index of January 2000 and the index of January 2001. The movement of the index between January 2000 and January 2001, further called the 'in-between period', is important to assess which of the two twin concepts is most suitable to present Year-on-Year growth rates. It is necessary to distinguish between increasing and non-increasing index time series. Examples of both types of time series are given in Figure 1 and 2 respectively.

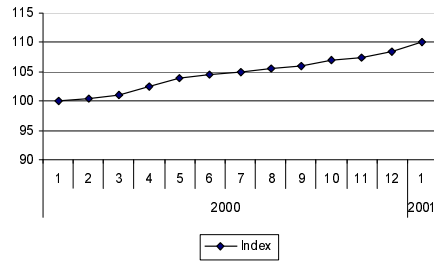


Figure 1. Increasing index.

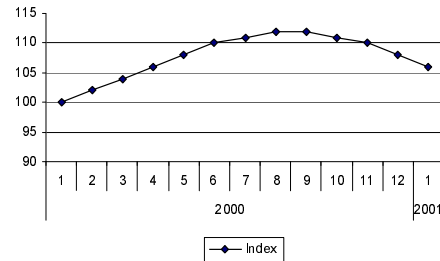


Figure 2. Non-increasing index.

A mathematical description to determine whether an index is increasing for the ‘in-between period’ is given below:

$$p_{MoM,2000,2} \geq 0 \text{ and, } \dots, p_{MoM,2000,12} \geq 0 \text{ and } p_{MoM,2001,1} \geq 0$$

For a time series to be increasing, for *every* month in the ‘in-between period’ the Month-on-Month growth rate has to be equal to or larger than zero. This is the case in Figure 1. It is not the case in Figure 2: from October 2000 to January 2001, the Month-on-Month growth rate is negative. The time series given in Figure 2 is non-increasing.

Whether the time series of the index is increasing or not plays an important role in selecting the correct terminology to communicate Year-on-Year growth rates in a press release text. Is the index in January 2001 *higher* than in January 2000? Or has the index *increased* compared with January of the previous year?

The term *increased* gives implicit information about all the Month-on-Month developments of the index in the entire ‘in-between period’. If the term *increased* is used, all these Month-on-Month growth rates have to be equal or greater than zero. For an *increasing* index in the period January 2000 to January 2001, as shown in Figure 1, using *increased* to present Year-on-Year growth rates is mathematically correct.

However, for a non-increasing index as shown in Figure 2, using *increased* to communicate the Year-on-Year growth rate of January 2001 compared with January 2000, is mathematically not correct. In the example, the Month-on-Month growth rates of October 2000 to January 2001 are smaller than zero, so the term *increased* is not correct, because not all the Month-on-Month growth rates in the ‘in-between period’ are equal to or greater than zero.

Using the term *higher* avoids this problem. This term does not contain any implicit information about the Month-on-Month growth rates for the ‘in-between period’. In both Figure 1 and 2 the index of January 2001 is higher than the index of January 2000, regardless of the dynamics of the index in the ‘in-between period’. Thus, by using *higher*, possible communication problems if the time series is non-increasing are avoided.

To sum up, the terms *higher/lower* can always be used to present Year-on-Year growth rates in press release texts; caution should be exercised when using the terms *increased/decreased*.

4. Analysis for Month-on-Month growth rates

For Month-on-Month growth rates, both *higher/lower* and *increased/decreased* can be used in press releases. Both twin concepts are mathematically correct. This is illustrated in Figure 3. The reasoning is given for *increased* and *higher*. An analogous case can be given for *decreased* and *lower*.

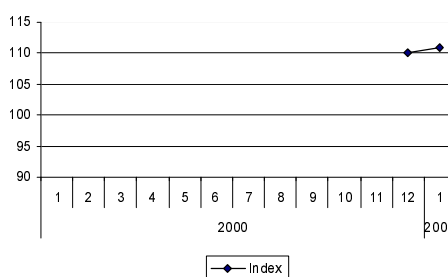


Figure 3. Increased or higher.

As there is no ‘in-between period’ when calculating Month-on-Month growth rates, there are no mathematically incorrect presentations as discussed in Section 3.

5. Statistics Netherlands internal recommendations

The results of the discussion in Sections 3 and 4 can be generalised to Quarter-on-Quarter growth rates. They are summarised in Table 1.

Table 1. Mathematically correct presentations of Year-on-Year and Month-on-Month growth rates.

<i>Growth rate presented</i>	<i>Higher/Lower</i>	<i>Increased/Decreased</i>
Year-on-Year	Correct (see section 3)	Possibly correct, but might be mathematically incorrect (see section 3)
Month-on-Month, Quarter-on-Quarter	Correct (see section 4)	Correct (see section 4)

Statistics Netherlands’ internal recommendations for presenting Year-on-Year, Month-on-Month and Quarter-on-Quarter growth rates in press releases are based on Table 1. For Year-on-Year growth rates, *higher/lower* is preferred, because

increased/decreased may be incorrect (see Section 3). For Month-on-Month growth rates, both *higher/lower* and *increased/decreased* are mathematically correct. Nevertheless, to prevent confusion with the presentation of Year-on-Year growth rates, the twin concept *increased/decreased* is preferred for Month-on-Month growth rates. The resulting recommendations are summarised in Table 2.

Table 2. Statistics Netherlands' recommendations for communication of growth rates in press releases.

<i>Growth rate presented</i>	<i>Higher/Lower</i>	<i>Increased/Decreased</i>
Year-on-Year	Preferred	Not preferred
Month-on-Month, Quarter-on-Quarter	Not preferred	Preferred

In other words:

- Use the twin concept *higher/lower* when referring to Year-on-Year (YoY) growth rates.
- Use the twin concept *increase/decrease* when referring to Month-on-Month (MoM) or Quarter-on-Quarter (QoQ) growth rates.

6. Note on frequency of data

It is noted that the reasoning presented in this paper applies to data of *one single selected frequency*, for example monthly data. When analysing monthly data, the recommendations set forth in this paper have only to apply to data with monthly frequency. Developments within the months of, for example, weekly data describing the same phenomenon do not have to satisfy the criteria. This is not considered a problem because in practice press releases seldom contain data with different frequencies.

7. Synonyms

In practice, to avoid monotonous texts other words than *higher/lower* and *increased/decreased* are used in press releases. Table 3 gives an overview of some word pairs recommended as suitable substitutes.

Table 3. Recommended use for word pairs in relation to higher/lower and increase/decrease.

Higher/lower	Increase/decrease
More/less	Rise/fall
	Up/down

So, *increase/decrease* may be substituted by *rise/fall*. Table 3 does not claim to be exhaustive; other suitable word pairs may well be available. Table 4 presents partial descriptions/definitions from *Collins Paperback dictionary & Thesaurus*.

It is noted that in Table 4 *higher/lower/more/less* are adjectives. They indicate a ‘situation’, a comparison of ‘levels’, in this case Year-on-Year changes. *Increase/decrease/rise/fall* are verbs. They refer to an ‘action’, in this case a change compared with a previous period, i.e. a Month-on-Month or a Quarter-on-Quarter development.

Table 4. Extracts from *Collins Paperback dictionary & Thesaurus*, second edition, HarperCollins Publishers 1994, 2002. v=verb, adj=adjective, prep=preposition.

<i>Concept</i>	<i>Description</i>	<i>Page</i>
Higher	Not defined explicitly in this dictionary. Interpreted for this paper as converse of lower.	-
Lower	· <i>adj</i> 1 below one more other things. [...] 2 smaller or reduced in amount of value. [...]	457
More	· <i>adj</i> 1 greater in amount or degree. [...]	496
Less	· <i>adj</i> 1 smaller in extent, degree or duration. [...]· <i>adv</i> 5 to a smaller extent or degree [...]. lessen <i>v</i> make or become smaller or not as much. [...]	441-2
Increase	· <i>v</i> 1 make or become greater in size, number, etc. · <i>n</i> 2 rise in size, number, etc. [...]	390
Decrease	· <i>v</i> 1 make or become less. · <i>n</i> 2 lessening, reduction. 3 amount by which something has decreased.	191
Up	· <i>prep, adv</i> 1 indicating movement to or position at a higher place. [...] · <i>adv</i> 2 (also upwards) from a lower to a higher place, level or condition.	815
Down	· <i>prep, adv</i> 1 indicating movement to or position in a lower place. [...] · <i>adv</i> from a higher to a lower level, condition or position. [...]	231
Rise	· <i>v</i> [...] 3 move upwards. [...] 5 reach a higher level. 6 (of an amount or price) increase. [...] · <i>n</i> [...] 10 rising. [...] 12 increase, esp. of wages.	657
Fall	[...]· <i>v</i> 3 decrease in number or quality. [...] · <i>n</i> 11 falling. [...] 13 decrease in value or number. [...]	279

8. Example

An example of the use of the recommendations presented in this paper is given below. It has been taken from the Statistics Netherlands website.



Statistics Netherlands

Economic monitor
31 August 2005 15:07

Factory gate prices increased in July

Selling prices of the Dutch manufacturing industry increased by 0.7 percent in July 2005 compared to June. July's price increase on the domestic market almost equals the price increase on the export market.

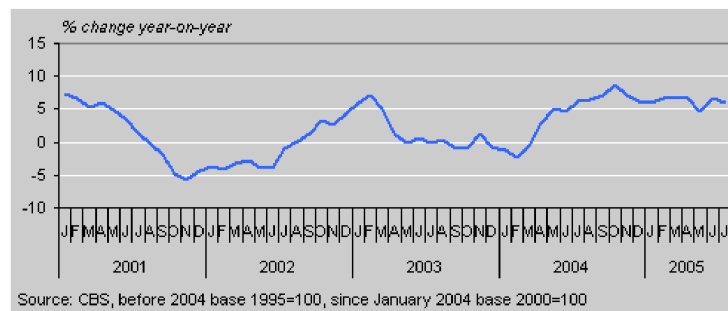
In July 2005 selling prices were on average 6.0 percent higher than in July 2004. Selling prices on the domestic market were 4.8 percent higher than the year before and export prices 6.8 percent. Since May 2004 selling prices have been at least 4.7 percent higher than the previous year.

Prices of raw materials and semi-manufactured goods used in manufacturing industry rose by 2.1 percent in July 2005 compared to June. Prices of imported raw materials and semi-manufactures increased by 3.1 percent. Domestic raw materials and semi-manufactured goods rose by 0.4 percent.

In July 2005 the prices of raw materials and semi-manufactured goods were almost 11 percent higher than in July 2004. Imported raw materials and semi-manufactures were 14.4 percent more expensive and domestic raw materials and semi-manufactures 5.5 percent.

Prices of crude oil and oil products largely account for the development of producer prices. Excluding the oil industry, selling prices of Dutch manufacturing industry were 2.9 percent higher in July 2005 compared to July 2004; prices of raw materials and semi-manufactured goods were 4.6 percent higher.

Factory gate prices



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