

The statistical environment of INFORUM models –

Major changes ahead

Update of the information provided last year

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Introduction

INFORUM modelling is dependent on the available statistical data.

The nature of the data and the access to the data are limiting factors for all modelling activities.

As already mentioned last year, two major changes in the statistical environment will happen in the near future:

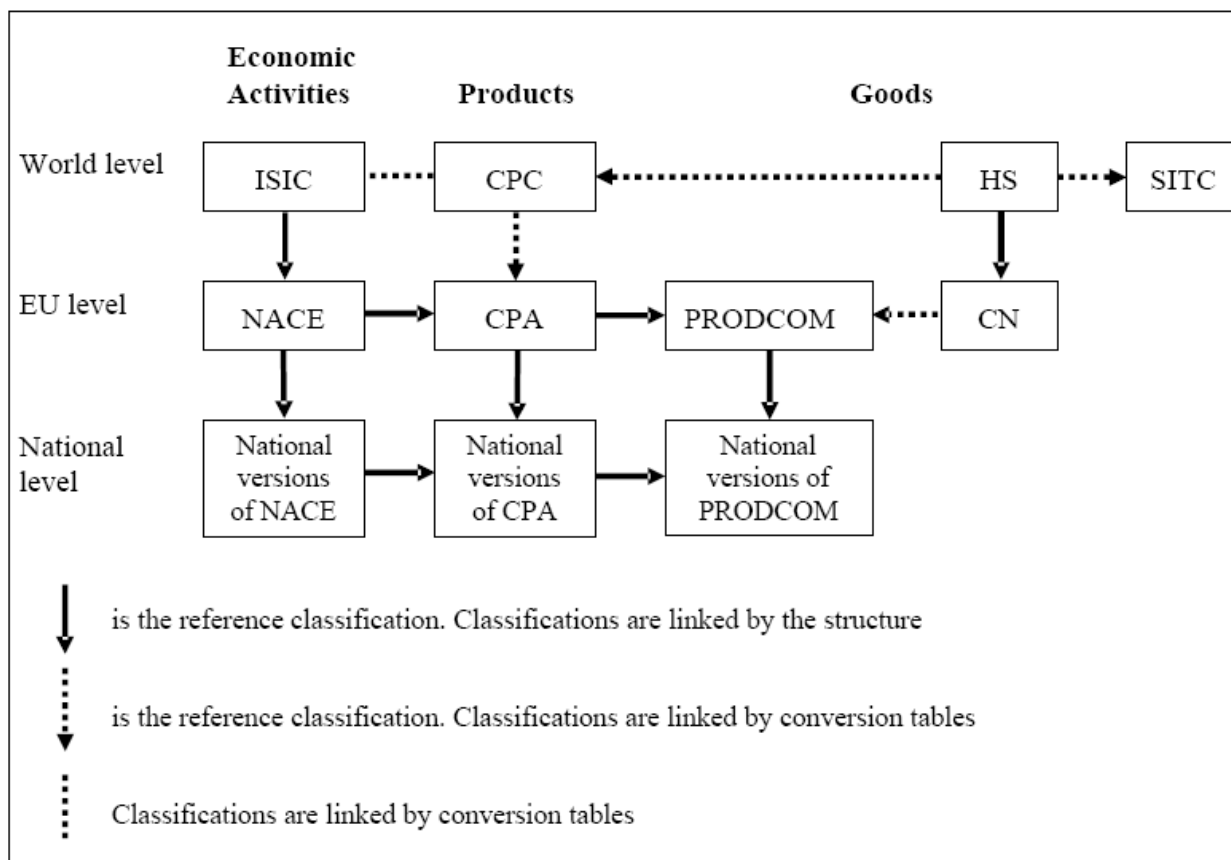
- o Revision of all major classification systems
- o Revision of the system of national accounts

The aim of this paper is to update the background information on the changes in the statistical environment ahead.

Emphasis will be on the European situation and in particular on the consequences of alternative methods of backcasting.


New classification systems


The family of international classifications




New classification systems

Activity classifications

ISIC Rev. 3.1  ISIC Rev. 4

NACE Rev. 1.1  NACE Rev. 2

Commodity classifications

CPC Ver. 1.1  CPC Ver. 2

CPA 2002  CPA 2008

For all classification systems and related metadata see:

<http://ec.europa.eu/eurostat/ramon/index.cfm>

NACE Rev. 2

NACE Rev. 2 has already been established by Regulation (EC) No 1893/2006. A second Regulation (EC) No 973/2007 amends 10 EC Regulations on specific statistical domains implementing the statistical classification of economic activities NACE Rev. 2.

The implementation of the revised classifications NACE and CPA in the EU with all its far reaching consequences is carried out in a special project called “Operation 2007”.

The implementation of the revised NACE in EU statistics also implies a disruption of all time series based on NACE Rev. 1 or NACE Rev. 1.1.

In order to achieve a certain harmonization of methods in the EU, a handbook on backcasting was produced, aiming at providing information to statisticians implementing NACE Rev. 2 in the European Statistical System.

NACE Rev. 2 – Dates of implementation

Short term business statistics for manufacturing already started to use NACE Rev. 2, starting with the reference year **2008**.

National accounts data disaggregated by NACE Rev. 2 categories will be available from September **2011** onwards. For national accounts five different levels of aggregation are planned:

Current transmission obligations have been translated as

A3	→	A*3
A6	→	A*10
A17	→	A*21
A31	→	A*38
A60	→	A*64

NACE Rev. 2 – Dates of implementation

Data according to Table 1 of the Transmission Program has to be provided back to 2000 in 2011, back to 1995 or 1990 in 2012.

Tables 15 (supply table) and 16 (use table) have first to be transmitted using the P*64 breakdown for the reference period 2008 by 31 December 2011.

Tables 17, 18 and 19 (symmetric input-output tables, product by product) have first to be transmitted using the P*64 breakdown for the reference period 2010 by 31 December 2013.

For supply-use and input-output tables no backward data is requested.

CPA 2008

CPA is the EU version of the CPC. The use of CPA 2008 is mandatory in the EU and based on Regulation (EC) No 451/2008 of the European Parliament and of the Council.

In the EU, product classifications for specific statistical domains (such as PRODCOM) are linked to the CPA unless the CPA is itself used as a survey classification.

Although the CPA is the European counterpart of the CPC, it differs from the latter not only in that it is usually more detailed, but also as regards its structure. The EU adopted the criterion of economic origin for its development, with NACE as the reference framework. Therefore, up to the fourth level (classes) the structure of CPA corresponds to NACE.

Backcasting - Old data presented in new classifications – European situation

“Backcasting” - reconstruction in terms of NACE Rev. 2 of existing statistical time series, previously expressed in terms of NACE Rev. 1 or NACE Rev. 1.1.

The NACE Regulation does not impose a specific date for the double coding: It only requires that statistics referring to economic activities performed from 1 January 2008 onwards shall be produced according to NACE Rev. 2.

Backcasting - Old data presented in new classifications – European situation

EUROSTAT has published a “Back Casting Handbook” to provide methodological assistance to the Statistical Offices in the Member States.

The methodologies presented in the “Back Casting Handbook” are not intended to be exhaustive or prescriptive.

All methods presented in the EUROSTAT handbook assume that all units recorded in the Business Register are double coded (according to the old and the new classification) for at least one point in time.

For most data in most EU Member States, at least 2008 will be the year of "double coding".

Backcasting - Basic alternatives (1):

- 1) Methods based on detailed re-working of individual data (micro-approaches)
- 2) Methods based on conversion coefficients (macro-approaches)
- 3) Methods applying interpolation between benchmarks (combined micro- and macro-approaches)

Advantages of the micro-approach are

- o retains the structural evolution of the economy,
- o does not require the choice of a specific variable to work with,
- o working at unit level, the micro-approach ensures consistency between these variables; the different retro-polated series are consistent after the retro-polation, as the same statistical unit considered in the different series will be accounted in the same way in the retro-polation framework.

Only disadvantage of the micro-approach: labour intensive

Backcasting - Basic alternatives (2):

Macro-Approaches

- o Working on the level of raw data or on the basis of “derived data” such as indices, adjusted indices, etc.
- o Use of conversion matrices based on observations of one year or based on observations over an average of years. A compromise can be to calculate coefficients for two different points in time and to compute the coefficients for the time points between these two by interpolation.
- o Use of one set of conversion coefficients (such as a set based on the number of units, on value added) for all variables.
- o Use of variable-specific conversion coefficients (based on turnover, employment, earnings, sales, etc.)

Backcasting - Basic alternatives (3):

Macro-Approaches

- o Level of aggregation
 - o NACE (2-, 3-, 4-, 6-digit level)
 - o Size classes
 - o National versus regional

Backcasting – Specific problem areas:

Macro-Approaches

- o Stability of conversion coefficients
- o Change in the classification of units in the backcasting period
- o Mergers and splitting of big units

Differences in target populations

Backcasting – Consequences (1):

Macro-approaches

All "historical" series will consist of three segments:

1. The historical time segment where only the old classification existed.
This is the segment for which conversion coefficients have been applied.
2. The transitory time segment where the old and new classifications are present and “double coding” was done on the unit level.
For this segment, conversion coefficients can be "observed".
3. The final time segment where only the new classification will be used.

Backcasting – Consequences (2):

Macro-approaches

The coherence of time series of different variables will depend on the method used for backcasting.

The link between historic micro and macro data does not longer exist.

Concepts matter

Backcasting – Concepts matter

Numerical examples based on official Austrian data

Short Term Indicators Manufacturing

Micro-approach

Double coding 2005 to 2008

Use of the NACE 2008 directly to produce new time series

Macro-approach

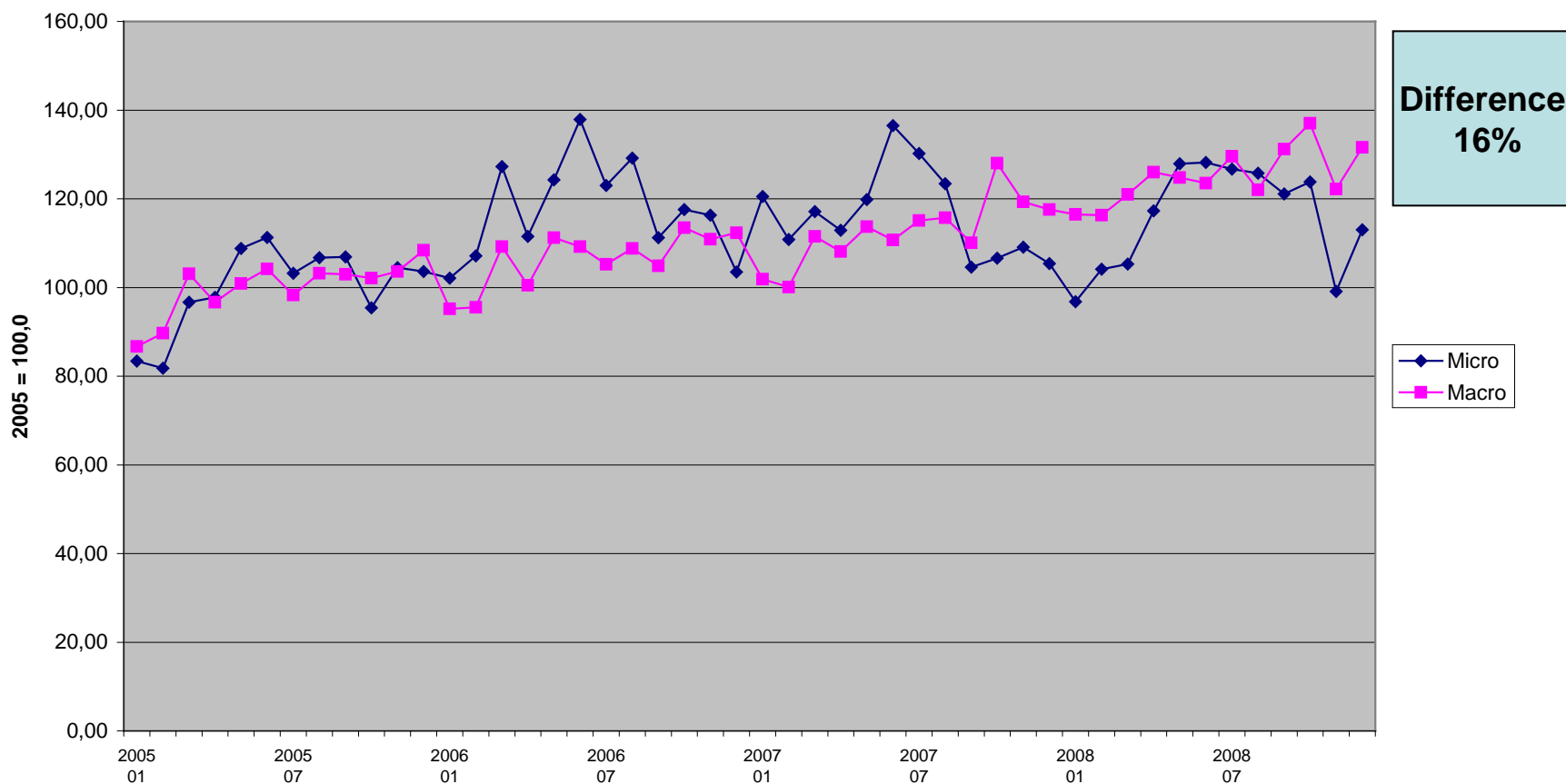
Use of variable-specific conversion matrices 2005 for converting the “old” time series expressed in NACE 2003 to NACE 2008 (Austria, two-digit level)

- Strictly speaking not backcasting but forecasting

Backcasting – Concepts matter

Numerical examples based on official Austrian data; Short Term Indicators Manufacturing

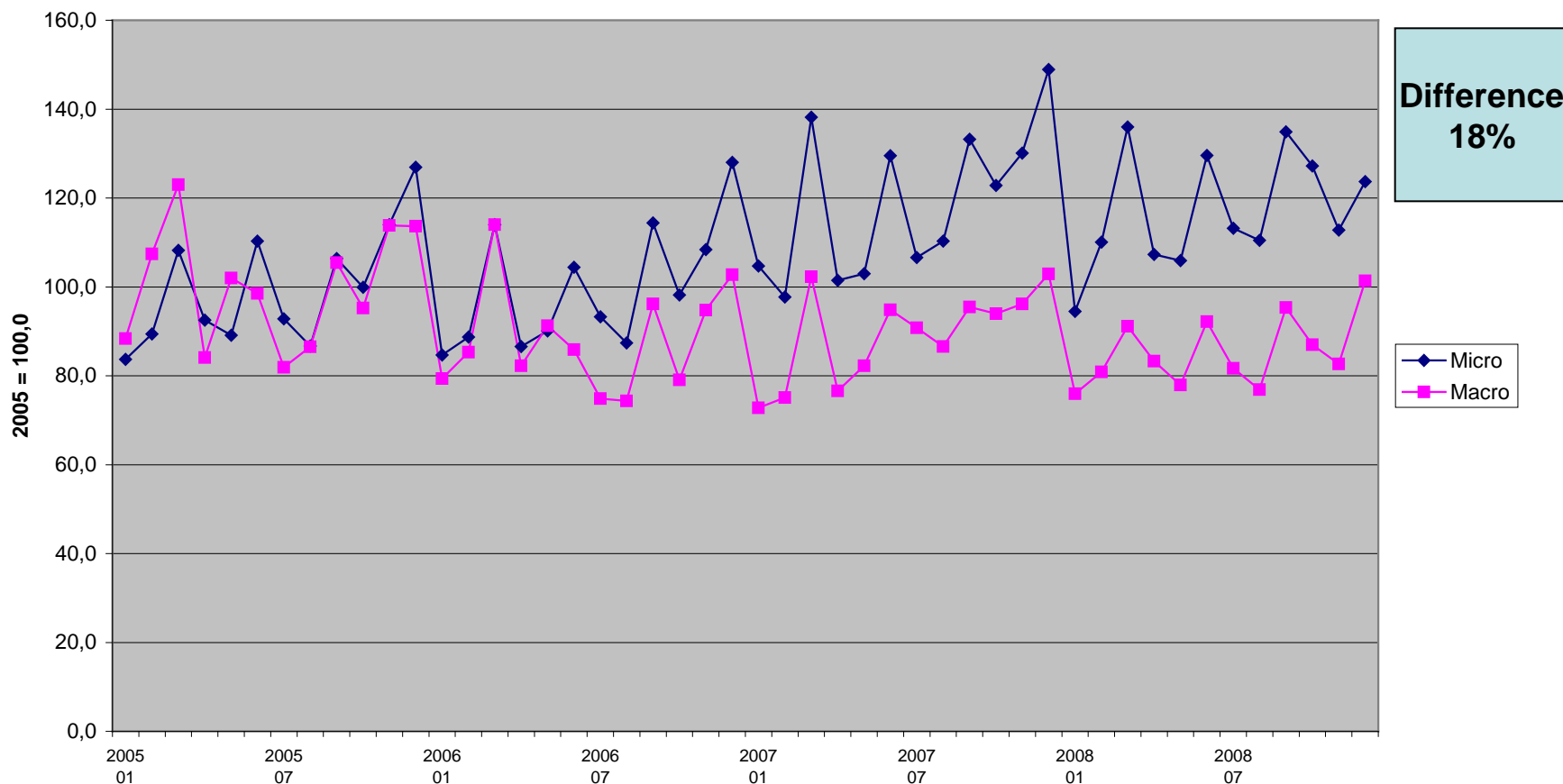
Indices Turnover
NACE 2008 11 Beverages



Backcasting – Concepts matter

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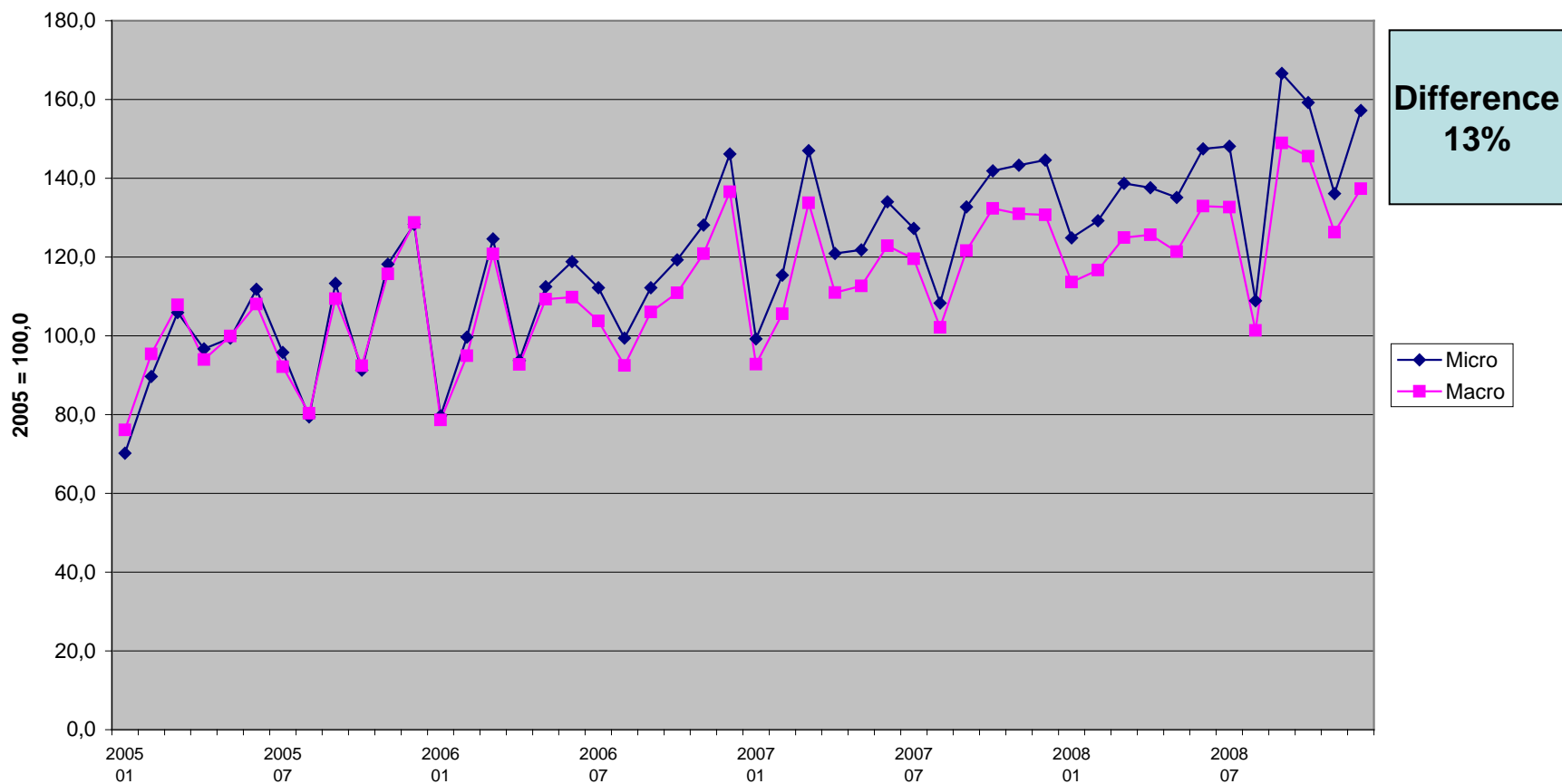
Indices Turnover
NACE 208 26 Computers



Backcasting – Concepts matter

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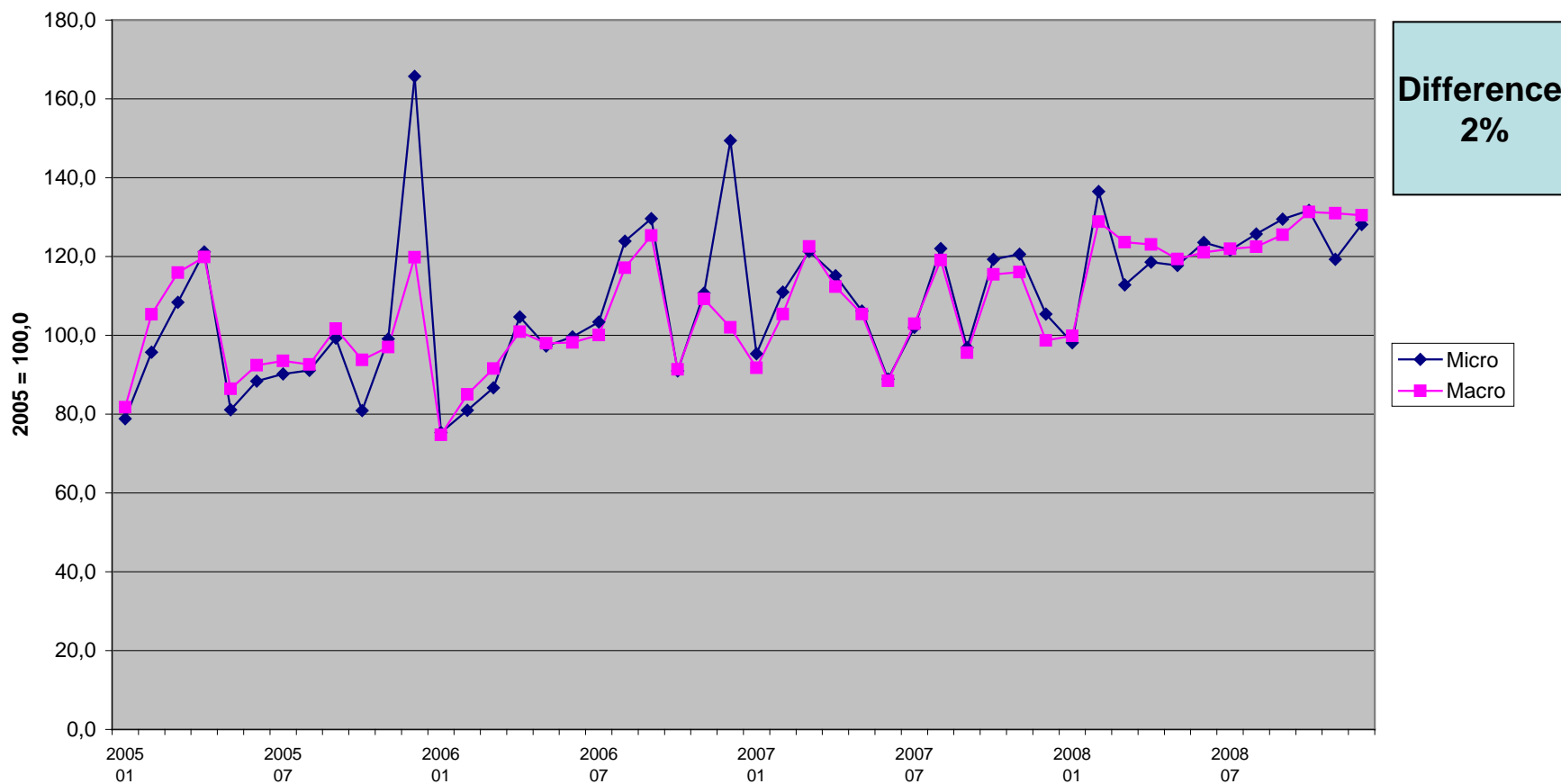
Indices Turnover
NACE 2008 28 Machinery



Backcasting – Concepts matter

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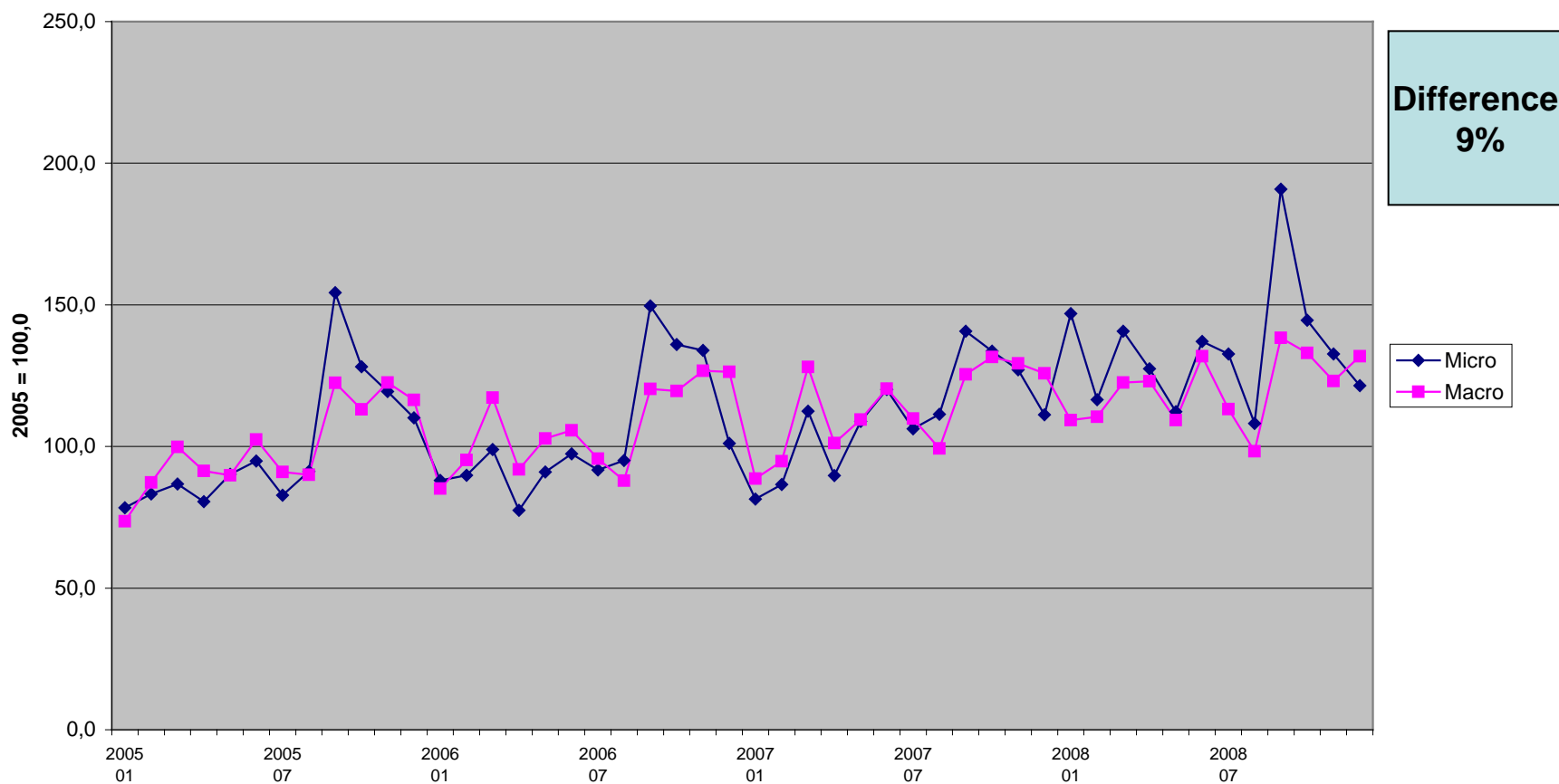
Indices Turnover
NACE 2008 30 Other Transport Equipment



Backcasting – Concepts matter

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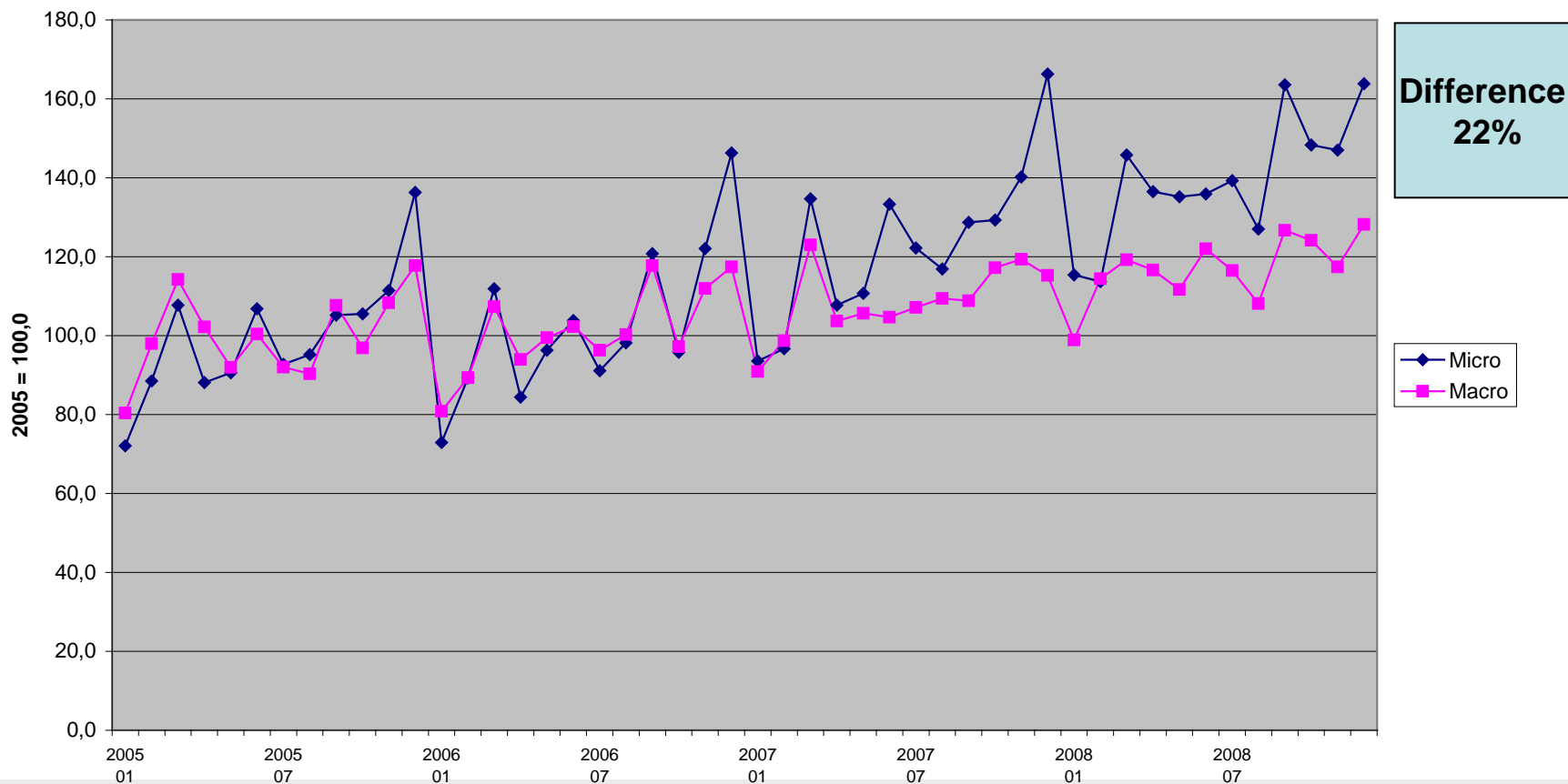
Indices Turnover
NACE 2008 32 Other Manufacturing



Backcasting – Concepts matter

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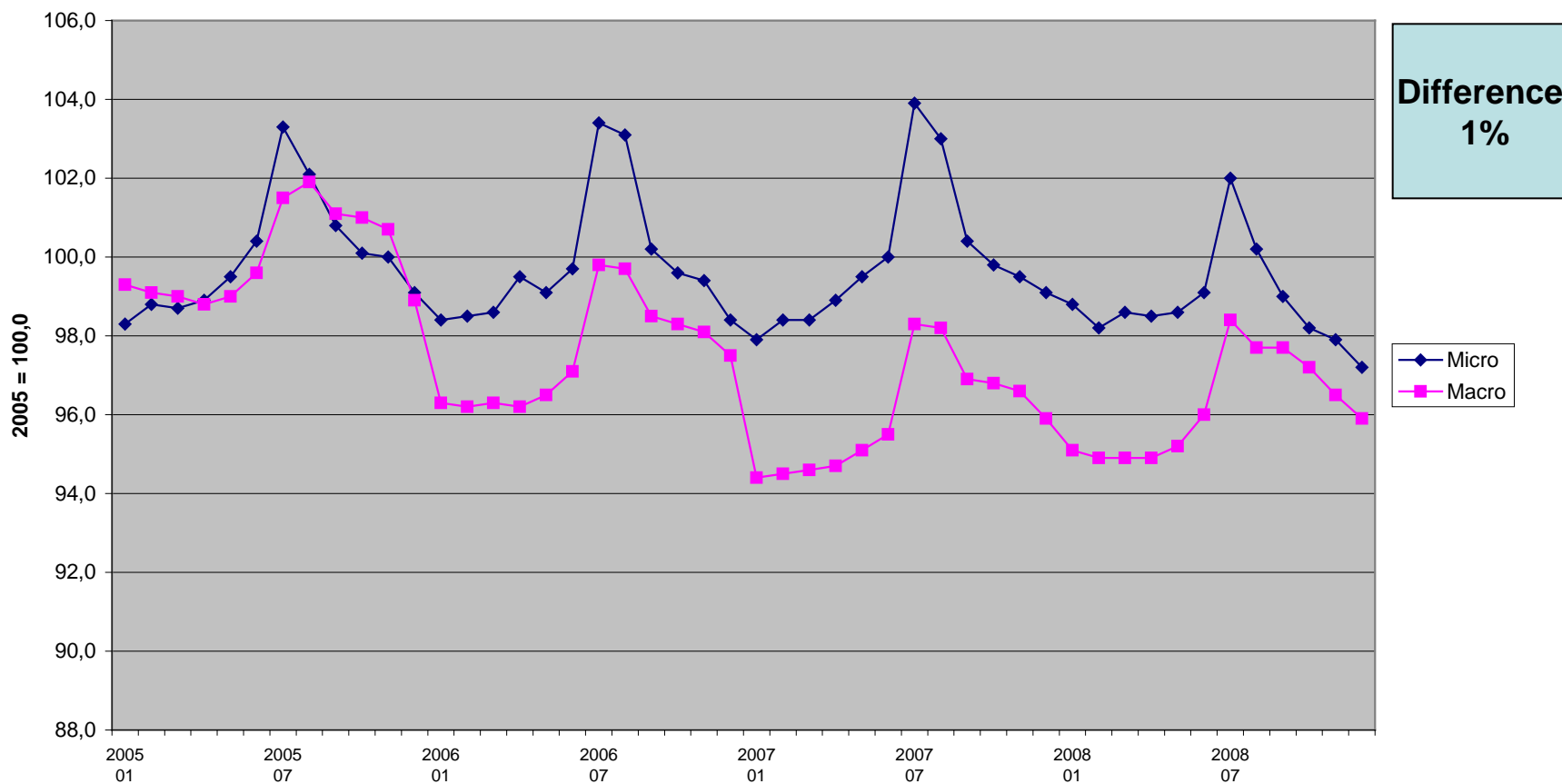
Indices Turnover
NACE 2008 33 Repair of Machinery



Backcasting – Concepts matter

Numerical examples based on official Austrian data; Short Term Indicators Manufacturing

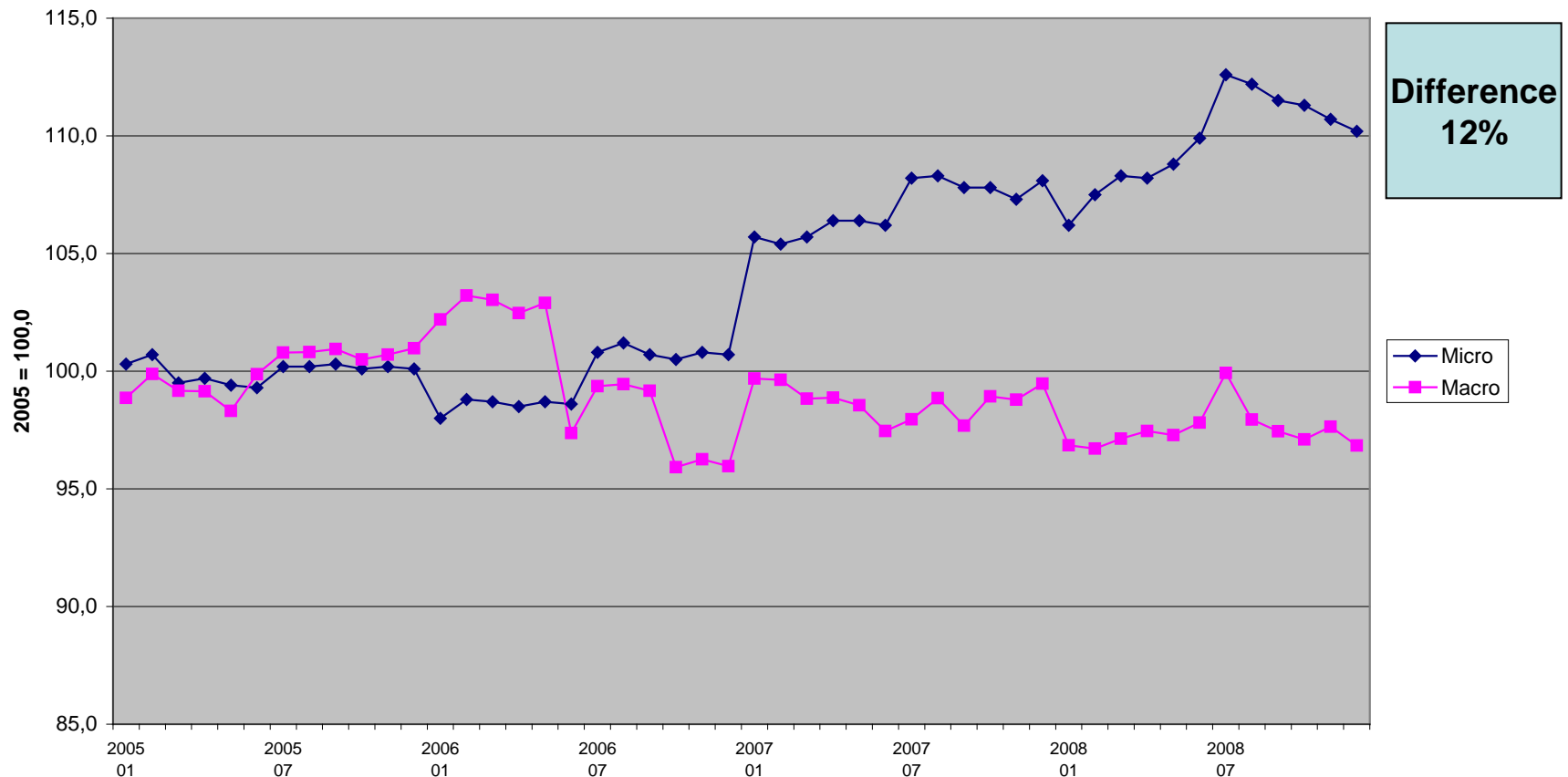
Indices Employment
NACE 2008 11 Beverages



Backcasting – Concepts matter

Numerical examples based on official Austrian data; Short Term Indicators Manufacturing

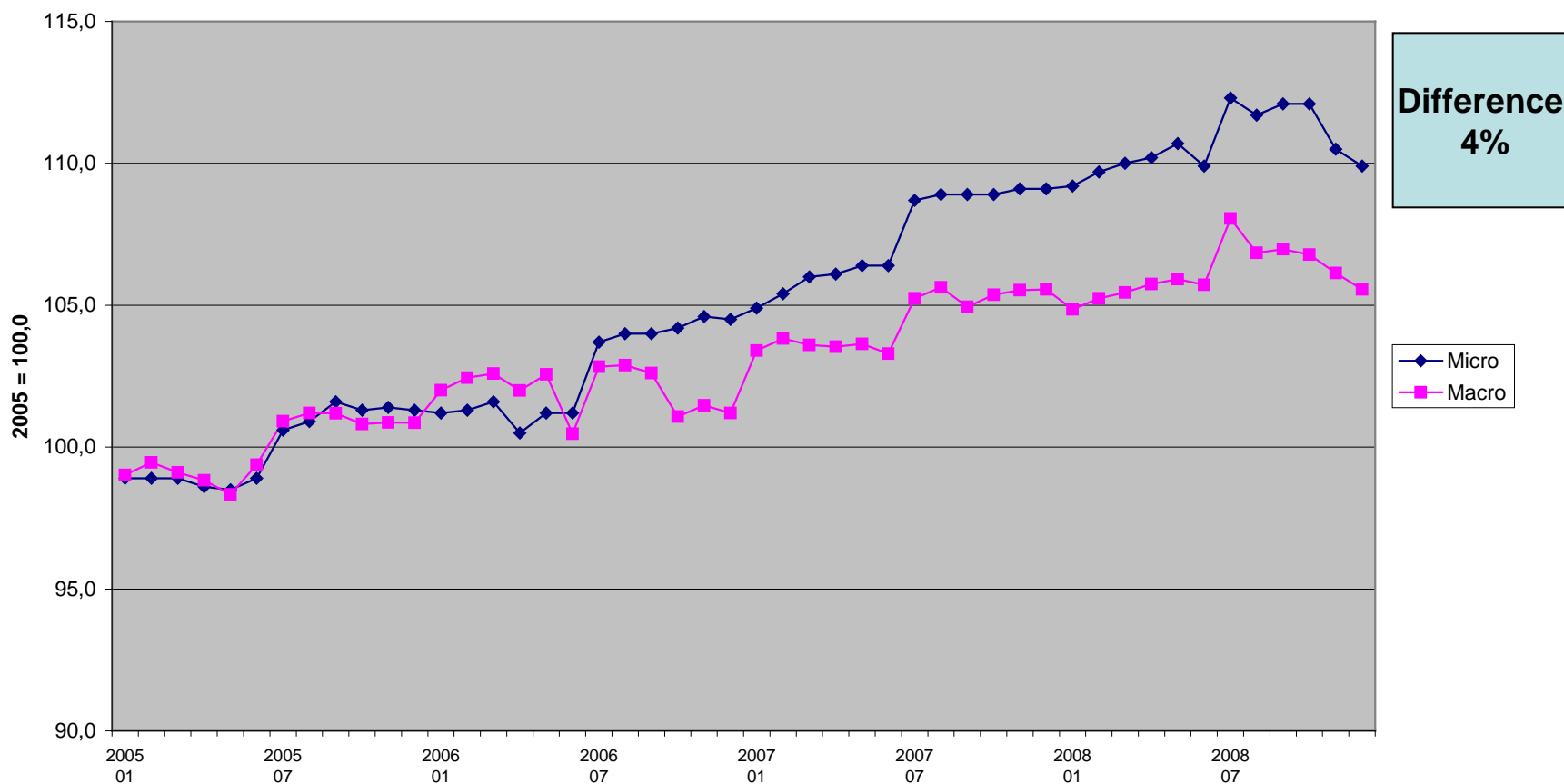
Indices Employment
NACE 2008 26 Computers



Backcasting – Concepts matter

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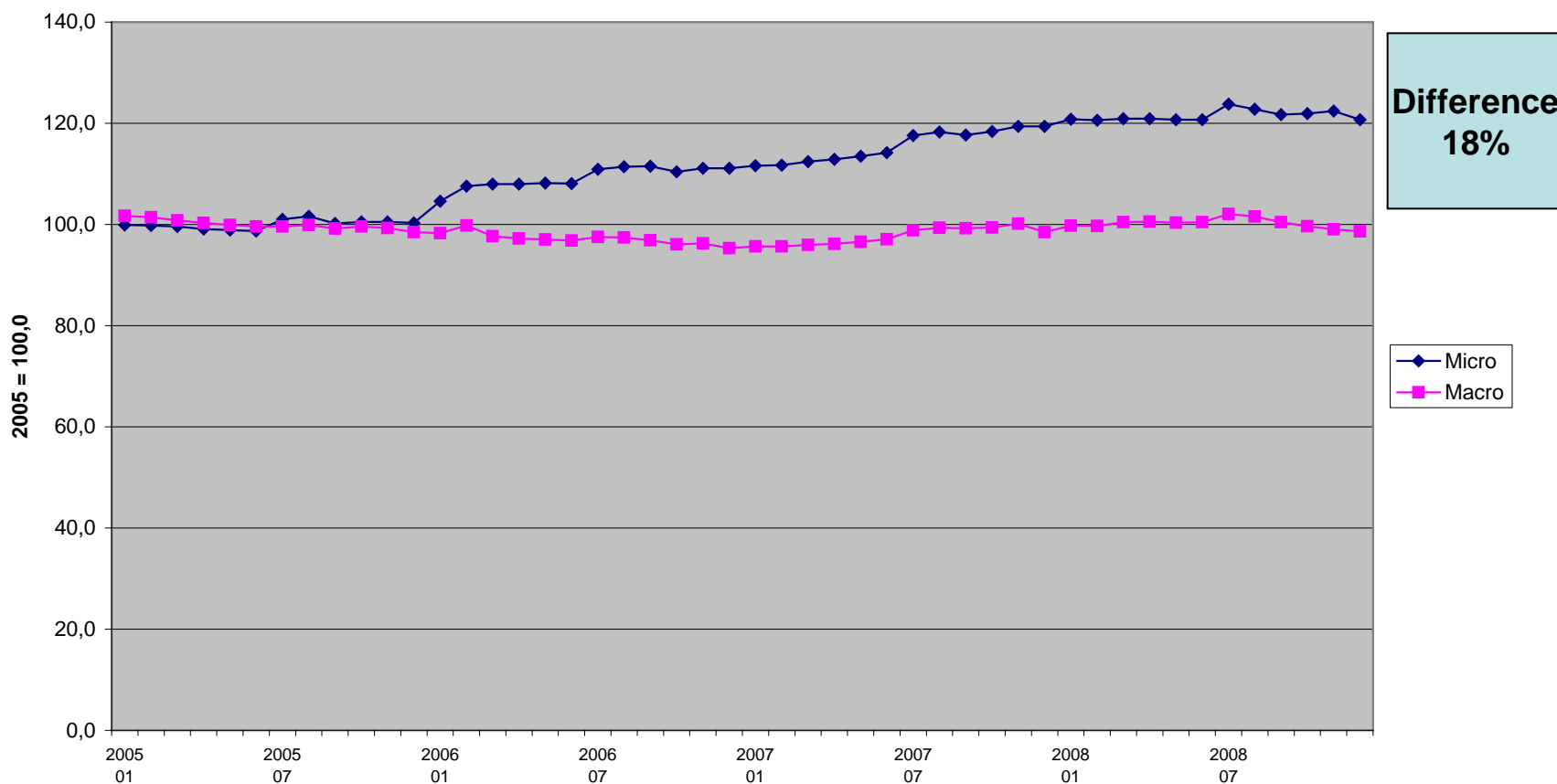
Indices Employment
NACE 2008 28 Machinery



Backcasting – Concepts matter

Numerical examples based on official Austrian data; Short Term Indicators Manufacturing

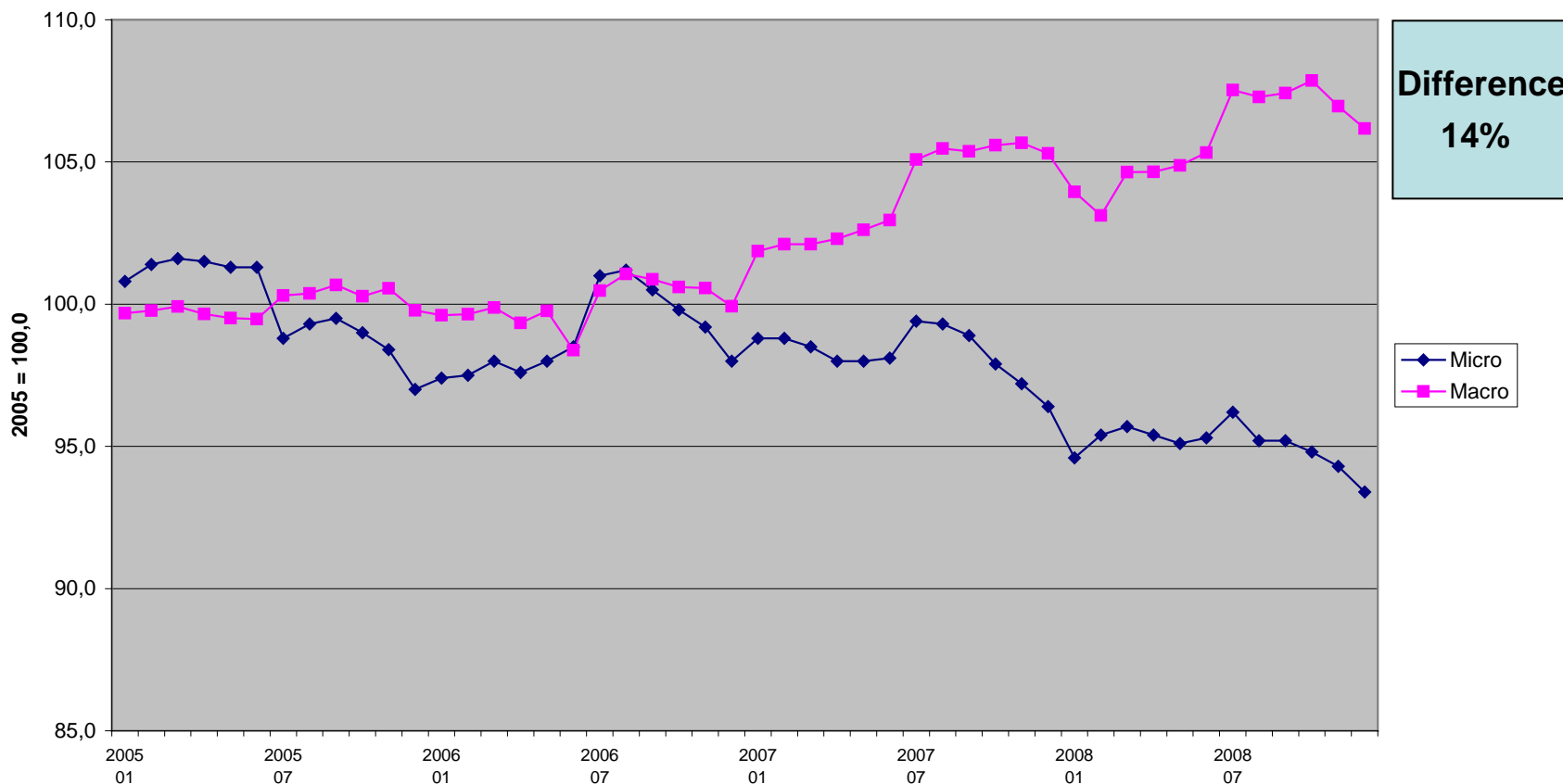
Indices Employment
NACE 2008 30 Other Transport Vehicles



Backcasting – Concepts matter

Numerical examples based on official Austrian data; Short Term Indicators Manufacturing

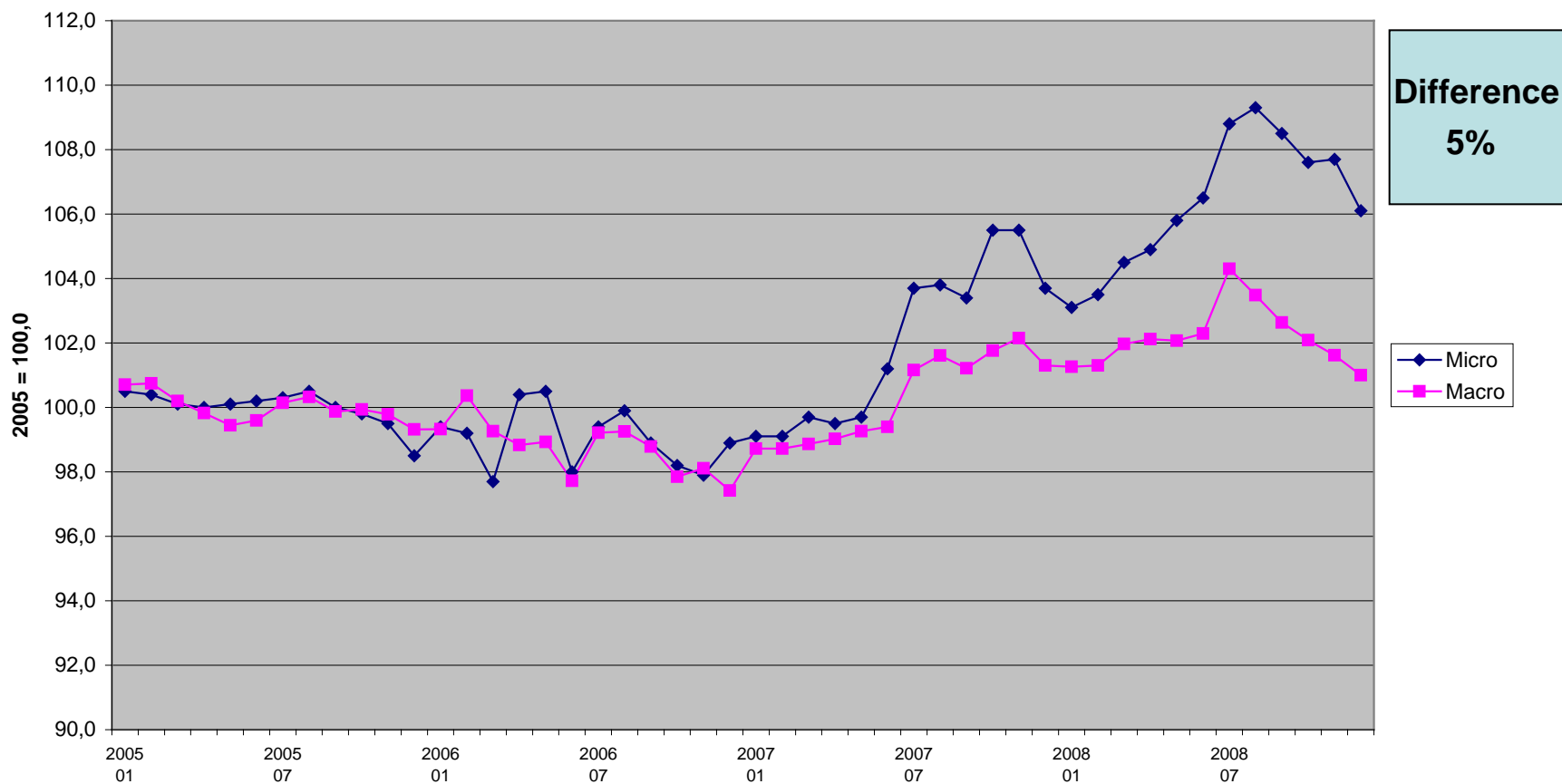
Indices Employment
NACE 2008 32 Other Manufacturing



Backcasting – Concepts matter

Numerical examples based on official Austrian data; Short Term Indicators Manufacturing

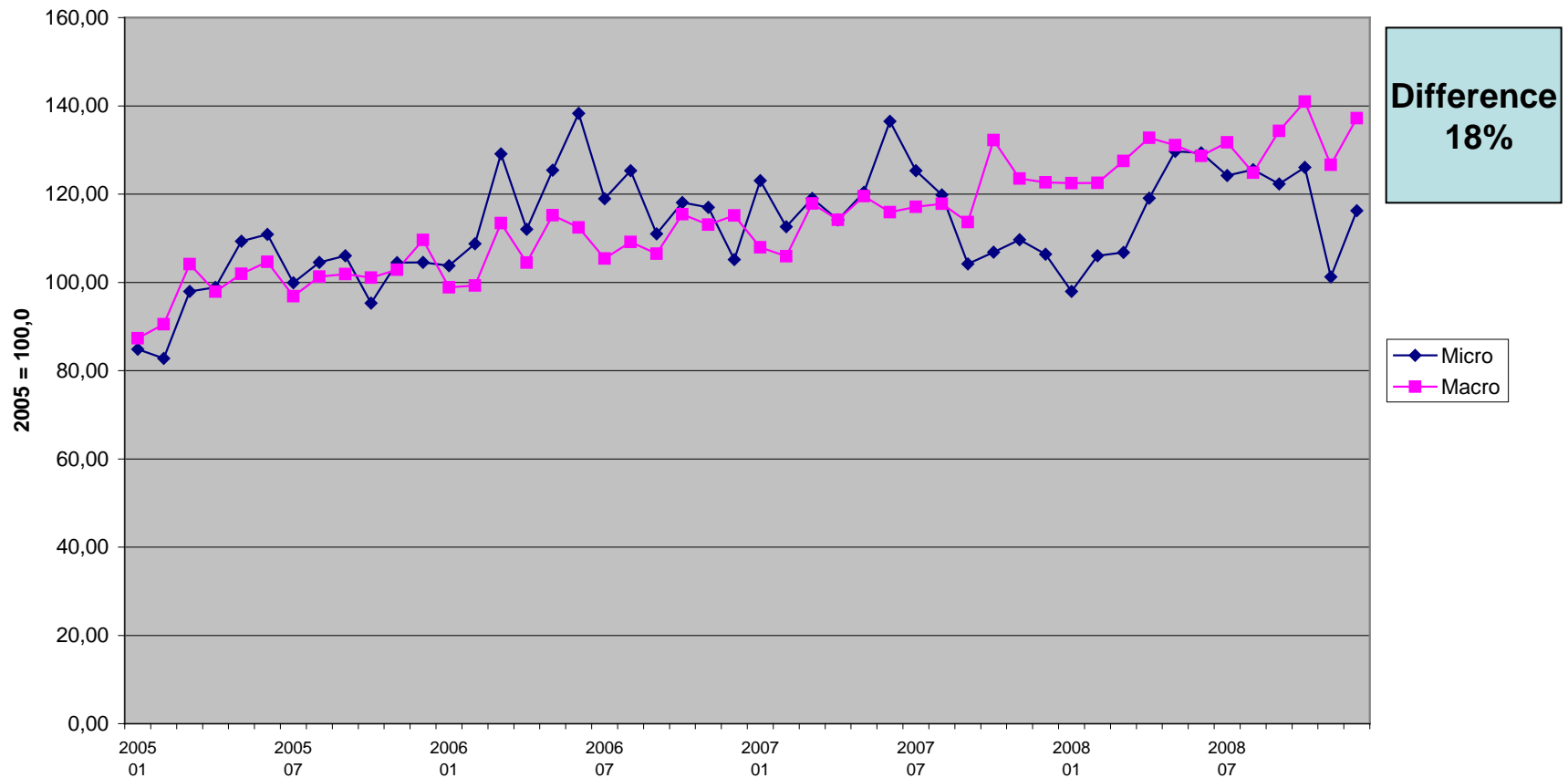
Indices Employment
NACE 2008 33 Repair of Machinery



Backcasting – Concepts matter

Numerical examples based on official Austrian data; Short Term Indicators Manufacturing

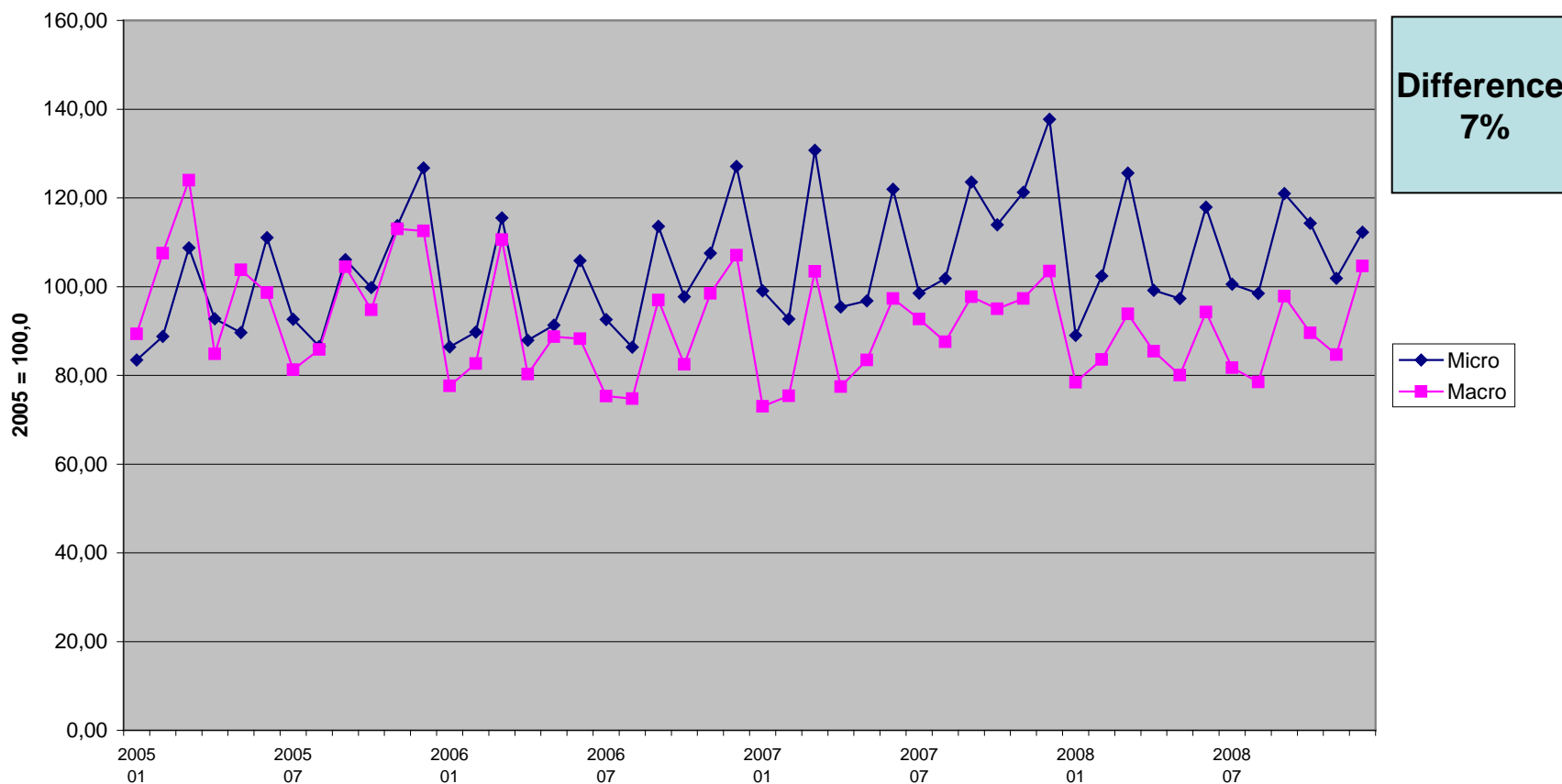
Indices Turnover per Employee
NACE 2008 11 Beverages



Backcasting – Concepts matter

Numerical examples based on official Austrian data; Short Term Indicators Manufacturing

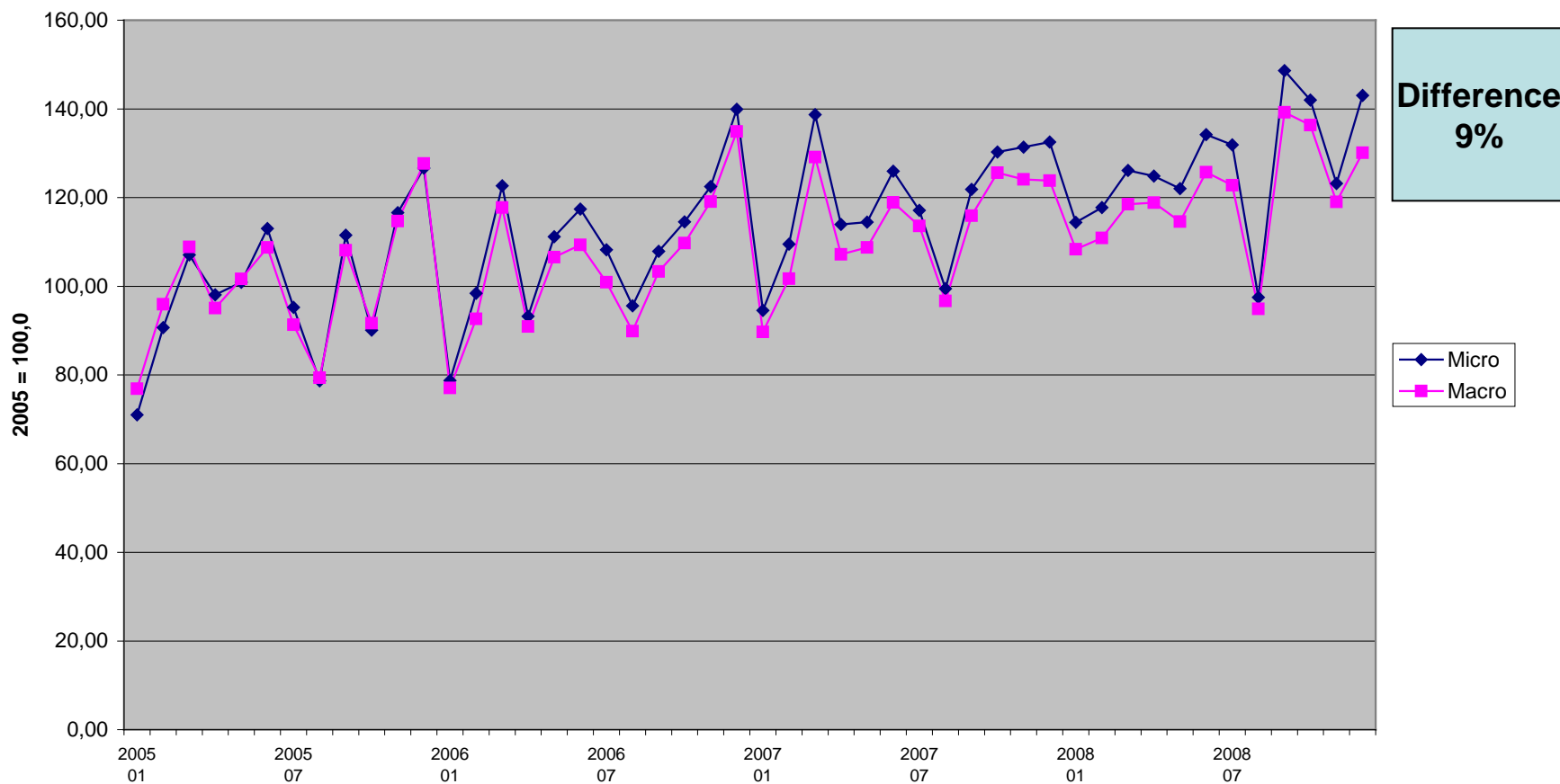
Indices Turnover per Employee
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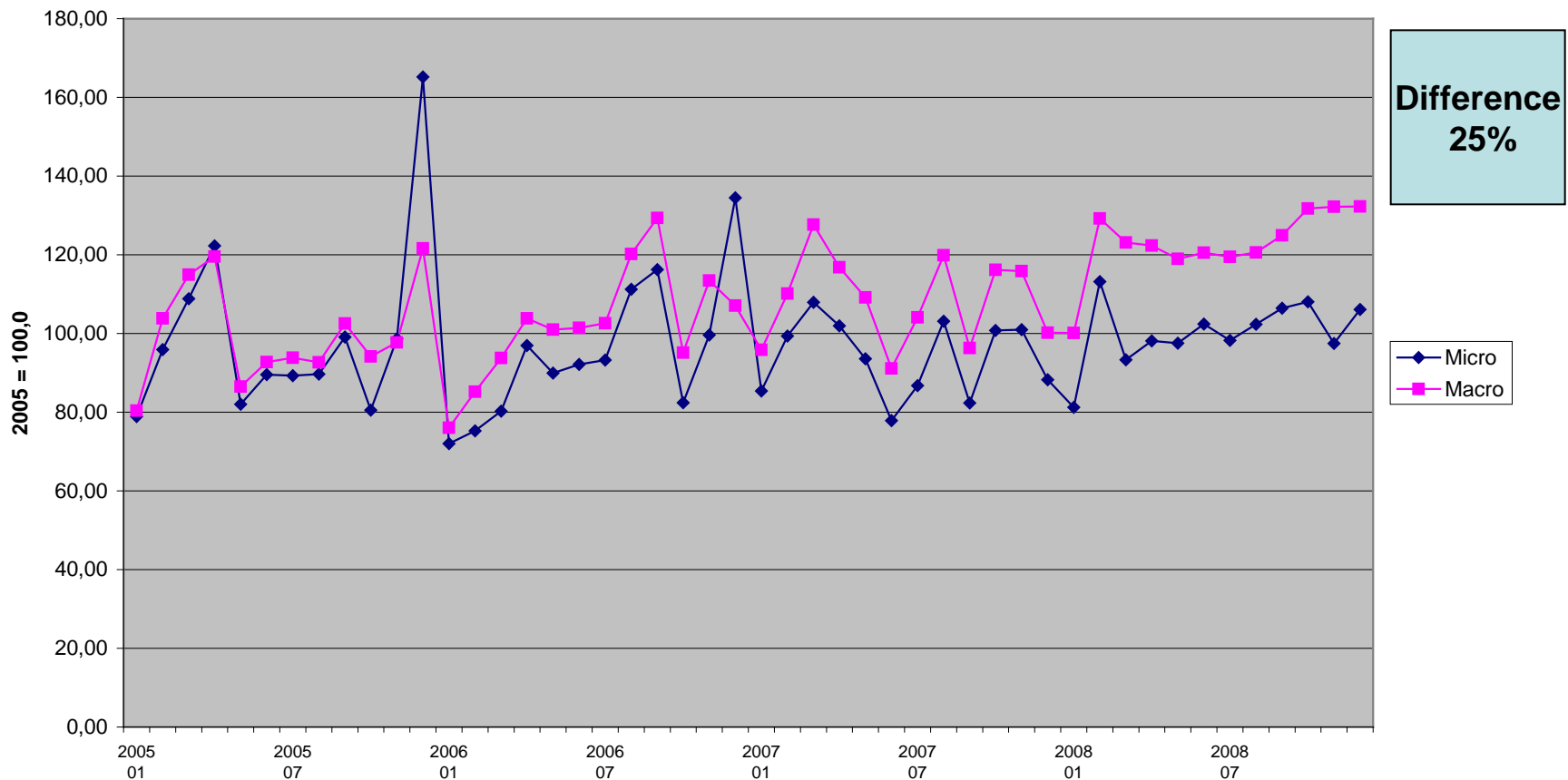
Indices Turnover per Employee
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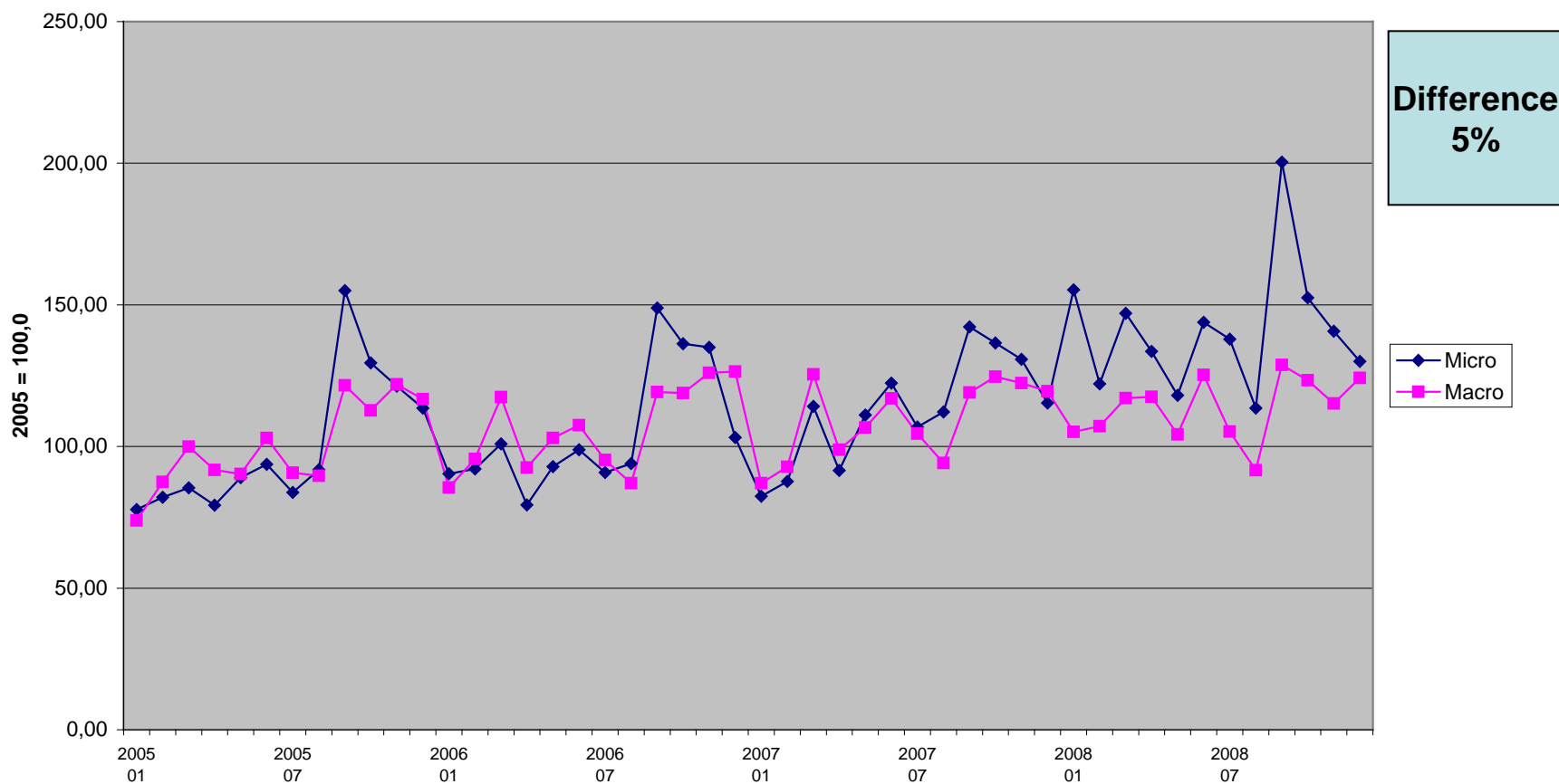
Indices Turnover per Employee
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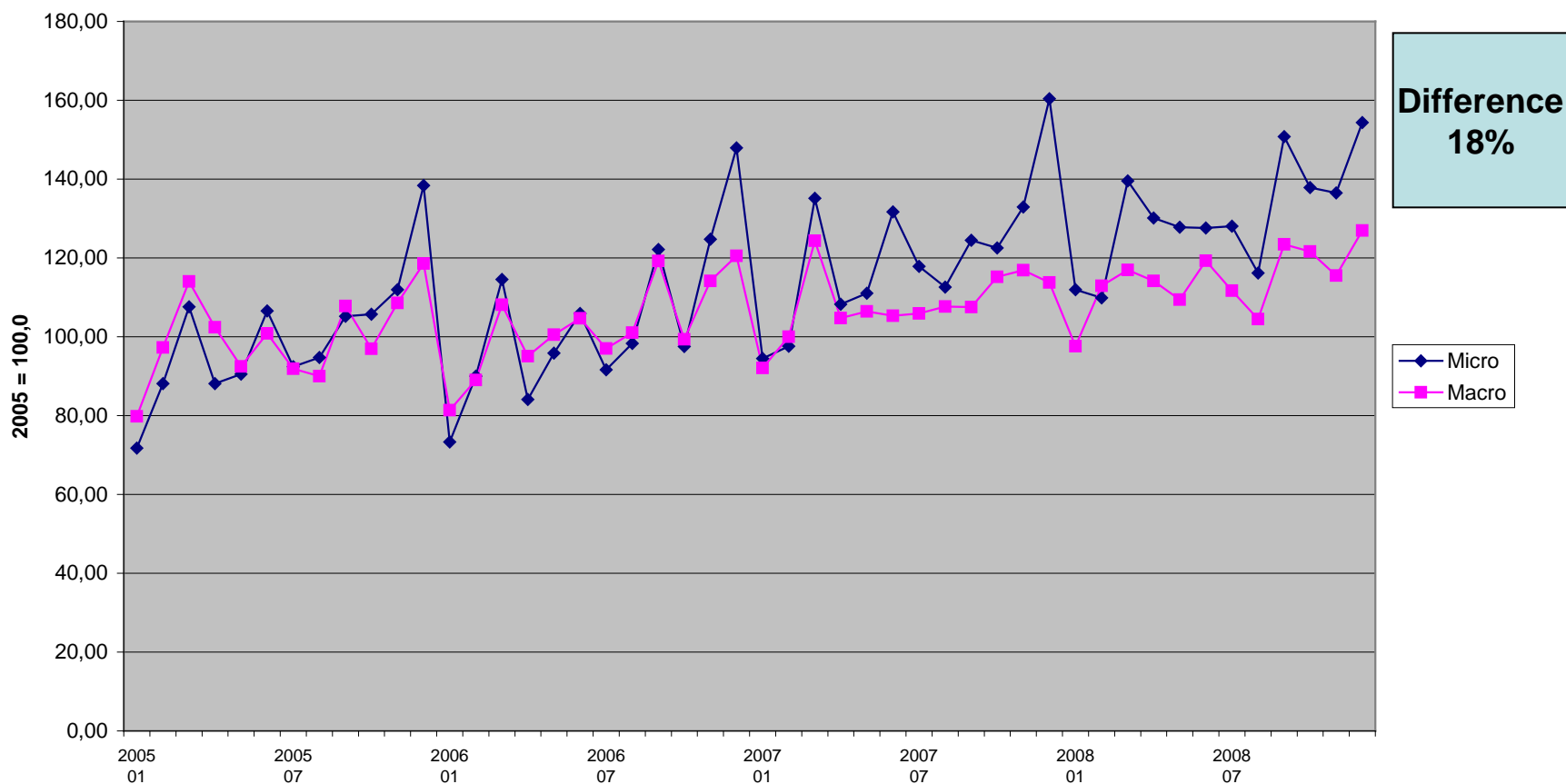
Indices Turnover per Employee
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Numerical examples based on official Austrian data; Short Term Indicators Manufacturing

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NACE 2008 33 Repair of Machinery



Revision of the system of national accounts

SNA 2003 Rev – SNA 2008

In 2003, the UN Statistical Commission called for an update of the SNA 1993 to bring the System into line with the new economic environment, with advances in methodological research and to remove inconsistencies in the SNA 1993.

The revision is sometimes called SNA 2003 Rev, sometimes SNA 2008.

Early in the revision process general agreement was reached that the revision should deal with issues emerging from new economic developments such as globalisation, but that **no fundamental changes should be made** in the System.

A close coordination of the update of the 1993 SNA and the revision of the Balance of Payments Manual, Fifth Edition was another goal.

Revision of the system of national accounts

SNA 2003 Rev – SNA 2008

The majority of the recommendations relate to

- o units and transactions that represent characteristics of an increasingly globalized economy;
- o come from increased interest in the sources of wealth and debt;
- o recognize the increasing role of intangible nonfinancial assets;
- o take into account further innovation in financial markets;
- o reflect the interest in better measures of the impact of pension liabilities in the context of an ageing population;
- o recognize the need for better measures of government and public-sector debt and deficit.

Revision of the system of national accounts SNA 2003 Rev – SNA 2008

The revised SNA will be provided in a two-part delivery.

Volume 1 was adopted by the UN Statistical Commission in March 2008. Volume 1 comprises the full set of chapters that represent the SNA framework in terms of accounting conventions, the accounts, and the integration of the accounts.

Volume 2 comprises mainly the interpretation of the accounts and various extensions such as satellite accounts. Volume 2 was adopted in February 2009.

Pre-edit, white-cover versions of Volume 1 and Volume 2 are available under <http://unstats.un.org/unsd/nationalaccount/snarev1.asp>

Revision of the system of national accounts SNA 2003 Rev – SNA 2008 Main changes

Issue 40 Goods for processing

Imports and exports should be recorded on a strict change of ownership basis. Goods being processed in one country on behalf of a unit residing in an another country would no longer be part of imports and exports in the balance of payments and SNA.

This decision has implications for the input-output tables, which on the proposed basis will reflect what each unit contributes to the production process rather than the physical technology, as it was the case before.

Revision of the system of national accounts

European system of national accounts ESA

In the European Union national accounting is governed by legally binding regulations because results of national accounts are to a large extent directly used for operational/administrative purposes.

The European system of national accounts ESA is broadly consistent with the SNA as regards definitions, accounting rules and classifications.

When SNA is flexible and includes several alternatives, ESA generally chooses a particular option to guarantee full comparability at EU level.





The revision of the SNA will be followed by a revision of the ESA.

Changes will cover both methodological references and data transmission requirements.

Revision of the system of national accounts

European system of national accounts ESA

Timetable

Draft text		November 2009
Draft for a new regulation		June 2010
Regulation adopted by the European Parliament and the Council		2012
Application		2014

The intensive discussion of the draft of the new ESA is carried out among experts of the NSIs only and dominated by “political considerations”.

Consequences for INFORUM Modelling

The changes in the activity and product classification systems in the near future will probably have more severe consequences on INFORUM modelling activities than the revision of national accounts.

The needs of model builders were not taken into account in the revision process which led to the new classifications:

- o Industries on the two digit level are still extremely inhomogeneous
- o No attempts were made to reduce vertical integration with all its undesired consequences for economic analysis in general and input-output analysis in particular.

Consequences for INFORUM Modelling

The change in the classifications will necessarily lead to disruptions in many time series.

In cases in which there is no 1 to 1 correspondence or a n to 1 correspondence between NACE Rev 1.1 and NACE Rev.2 the range of meaningful parameter estimation will depend on two factors:

- o Whether the Statistical Offices will be ready to produce long homogeneous series, even beyond what is mandatory according to EU regulations.
- o On the methods used for the backcasting process.

In this context it will be of crucial importance that this backcasting is done within a coherent methodological framework.

Consequences for INFORUM Modelling

If the backcasting is done for each of the series independent from one each other parameter estimation will be seriously biased reflecting differences in the backcasting procedures and not economic behaviour.

In the EU the data situation in the transition period 2008 to 2011 will be very specific. National account results will be presented in a disaggregation by NACE Rev.1.1. The underlying basic statistics, however, are already produced in NACE Rev.2 breakdown and the coverage of statistics is also already determined by NACE Rev.2 criteria.

National accountants will have to do a lot of extra modelling work and be quite creative to re-arrange the input data according to the new classifications into an old framework.

Consequently, even the final results for 2008 and 2009 will not be fully compatible with the results of the reference years before 2008.

Consequences for INFORUM Modelling

Only minor changes in the overall statistical environment will occur because of the revision of the SNA.

The fact that the entire statistical system in the EU is governed by regulations has one advantage for INFORUM modelling: Planning is made easier. Model builders know well in advance which kind of statistical information will be available when.

In the next years the statistical environment will experience considerable changes.

All modifications can be characterized by emphasis put on

- o short-term movements
- o “single variable approaches”

A real challenge for those engaged in INFORUM modelling.

Thank you for your attention