

## Economy and Innovation Policy Information Systems: a module for monitoring firm foundation activities in Styria

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### **Introduction**

The dynamic element of regional development is often attributed to newly founded firms. There are strong presumptions that the presence and growing number of new firms, and especially new technology based firms, is a strong supporting element for a region in its attempt to become a more active space. These firms play an important role both for the development of regions and for the dynamics of market processes, especially for the realization of research intensive innovations. In contrast to established firms, their innovative activities are mainly oriented towards their clients, towards existing product programmes, towards specific demand potentials and towards the desire for modifications (Mowery/Rosenberg 1979). For small and new firms, innovations are "every day business" - the generation of innovations is their core-business, innovation oriented thinking and acting is taken for granted (Gundrum/Walter 1995).

The Austrian province of Styria has for decades suffered from a more or less closed border to the East (Hungary) and South (former Yugoslavia) and was also handicapped by the existence of an "old industrial area" in its Northern part with a domination of large, mostly nationalized firms - both facts were impediments for entrepreneurial activity and the development towards an "active space".

Yet the period since the '90s has brought about some relevant changes: Through the opening of the borders towards the Eastern and Southern neighbours and through the European integration Styria has changed from a closed border region at the outskirts of the West European market societies to a core area of the European Union and has offered the advantages of a stable economy with access to the internal market and a simultaneous vicinity to the South-Eastern regions of Europe. These changes of

course represent a challenge for Styrian firms calling for increased innovation, flexible production, networking activities and cooperation with R&D institutions.

The assumption is that new firms play an important role in this process. The natality and survival rates of new firms, their employment effects, their contribution to structural change and their technology-orientation have moved to the center of regional and national economic policy considerations. For instance the success stories of US-NTBFs (new technology based firms) which grew into large enterprises creating thousands of jobs has led to the assumption that new firms can contribute significantly to increasing employment and growth.

To which extent new firms contribute to the development of regions eg in terms of employment and structural change has so far not been quantified in a sufficient way. A sound regional data base on firm start-ups and closures, their characteristics and their development patterns should therefore be one of the central requirements for an Economy and Innovation Policy Information Systems. It should be mentioned that there is an enormous diversity of methodological approaches in the field of firm start-ups statistics and monitoring which will be discussed in brief in this paper. In particular a new approach will be reported which offers the opportunity to give quantitative answers to the following issues in the framework of new firms and SMEs in general:

- To which extent do new firms and SMEs contribute to economic structural change ?

Is there a regional pattern of foundation ?

The assumption is that especially the lesser developed areas have problems in keeping pace with other regions in their economic performance. New firms may help to generate competitive economic structures by creating new markets and delivering impulses to established firms for productivity and innovative activity to grow. Relative sectoral differences in the growth of firms measured by the changes in the number of employees give evidence on structural changes in the region. Apart from a time series of numbers of new firms and jobs offered in different sectors the regional foundation rate (# new firms divided by # established firms) is a valuable indicator of economic structural change. In peculiar the natality rate in the technology-oriented and the business service sector should be given close attention.

- What is the new firms' net contribution to employment and is their growth sustainable ?

The contribution of new firms to employment growth has been subject of a number of empirical studies with sometimes very heterogeneous results. In order to clarify this issue the basic figures of number of jobs offered by new firms (in different regions and sectors) have to be given. However, an additional important fact often overlooked in new firms related discussion is the balance of "birth" and "death"

rates of firms in a given period. The indicator of natality and survival rate of new firms can help to quantify net job creation effects in this field.

- Do new firms create qualified employment ?

Do technology-oriented new firms differ from other firms in their importance for the creation of employment?

Apart from sheer numbers of jobs created by new firms there is a qualitative aspect: It has yet to be confirmed that an essential part of the qualified workforce is employed in new firms (in relation to the individual sector), thereby also generating a learning effect with other connected firms. A monitoring of new firms should also consider the full scope of sectors (with a special emphasis on the technology sector and the business service sectors) as well as new forms of employment.

- Are new firms complementary to established enterprises in the sense that they help to build up competitive economic networks of firms ?

The competitiveness of the leading firms of a region is very often highly sensitive to the performance of their related and supporting industries in the same area. New firms are mostly motivated by innovative ideas closely connected to the economic tradition (products and services already offered) of the region. They develop innovative products or services used directly or indirectly in the production process of the leading firms, thereby generating positive effects for the whole regional economy.

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In the following a short description of the Styrian economy and its recent changes will be given.

### ***Styria: from a closed border region to a more active space***

Styria is one of the nine provinces of the Federal Republic of Austria with a population of around 1,2 million, an area of 16,000 km<sup>2</sup> (about 19% of total share), and a share in total employment of about 13 % and a share in the Austrian GNP of around 12%. Styria's regional economy is strongly dominated by the manufacturing sector which has a share of 16% in total employment of Austria's manufacturing sector. Its dominant position can be traced back to a long-lasting tradition of two economically most important areas within the province: Upper Styria and the capital of Styria, Graz, with its surrounding areas.

Numerous studies were carried out during the last ten years analysing the economic situation of Styria in different contexts in order to elaborate appropriate strategies and instruments fostering Styria's long

term competitiveness. Based on these proposals, big nationalised firms have been reorganised and broken up into smaller parts, new applied research institutions have been established, technology parks have been founded, a technology transfer and advisory service infrastructure has been built up and regional development and financial support programs in general have become more innovation orientated. All together these policies seem to have propelled economic development of Styria bringing about more propensity to innovation and technological development within the region. There is strong evidence that innovation activities have been increased and that employment in the private sector has been raised.

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However, a quantitative assessment of **Styrians' entrepreneurial spirit**, indicated by a set of indicators around "new firms being created" has not been possible so far. Useful data about specific groups of economic actors like new firms is traditionally very scarce - in Styria just as in other European countries (see eg Kulicke et al., 1993). The reasons for this situation are twofold: on the one hand, there is no tradition in collecting data about new firms because their effects on regional economic development have been analysed for a short time; on the other hand, it is extremely difficult to differentiate new firms from established firms using standardised economic data.

In this paper we make the attempt to dwell on a newly developed information system for the region of Styria which contains new meso- and macroeconomic data with respect to firms and employed persons - an Economy and Innovation Policy Information System named W.I.B.I.S. (Wirtschaftspolitisches Berichts- und Informationssystem Steiermark) which has been designed and implemented recently on behalf of the Styrian government. In the following a specific module of the system, the module for monitoring firm foundation activities will be presented as an example for analysis opportunities the W.I.B.I.S. system offers - the firm foundation module is an important but by far not the only application of the system.

## ***The WIBIS database - methodological background***

In collaboration with a partner organisation a method was developed to tap the administrative data-base of the Austrian "Hauptverband der österreichischen Sozialversicherungsträger" (head organisation of the regional social insurance bodies) which includes individual data on all Austrian enterprises (with at least one employed person) and data on the individual employees on a regular basis ranging back into the past 25 years. The strictest level of confidentiality has been applied: the database does not contain names or locations of neither individual enterprises nor employees. Furthermore this set of data which comprises millions of data has been merged with information vectors in the fields of qualification and vocational background of the employed persons taken from different current and nation-wide official sample surveys.

The result of all these efforts is a database which covers the total population of enterprises and employed persons in Austria and provides respective figures on an annual basis which can be differentiated by the following attributes :

enterprises:

- region (district and/or NUTS-III)
- sector (max. 60 NACE sectors, fewer sectors on a regional basis)
- size (from 1 employed person onwards)
- change in employment between begin and end of the year

employed persons:

- type of employment
- sex
- vocation (ISCO standard)
- qualification (level of education, ISCED-standard)
- salary

From this list of attributes one can imagine the enormous scope of analysis opportunities this database allows for by using different statistical tools and ways of interpretation and presentation. For an

Economy and Innovation Policy Information System, however, the number of information (tables) given with the information system have to be reduced to a feasible volume<sup>1</sup>.

A major benefit this methodological approach offers shall be the main focus of this paper and shall be discussed in brief: It is a new way to obtain quantitative data on new firms, their structure and their development paths which offers the opportunity to give answers to the questions raised in the introduction of this paper. Theory, practical implementation and preliminary results will be presented in the following chapter.

### ***New firms and their development: Methodological approaches***

As a result of growing interest of economic policy in firm foundation a number of studies and surveys have been conducted over the last few years which have led to rather diverse and sometimes contradictory results. One reason for that is the lack of a standard definition and a consistent methodological framework for the term "firm foundation", another is the scarcity of data in this field. Recently a standard has been stated which gives a rough framework for the term "firm foundation" according to three attributes:

- \* firm moves to a new sector (the sector with the major share of turnover)
- \* firm moves to a different location
- \* firm changes its name

If 2 out of 3 attributes apply, a firm foundation should be registered. However this standard has not been widely recognized.

Generally one can distinguish three basic methodologies for the generation of quantitative and qualitative data on new firms and their attributes:

1. company register based data
2. membership based data (eg Chamber of Commerce)
3. social insurance based ("administrative") data

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<sup>1</sup> To give a perspective appr. 2.400 tables drawn from the millions of anonymous individual data were selected in a first step. Then a number of appr. 200 tables were designed and generated by using extensive aggregation routines and included in the costumer version of the WIBIS system.

## **ad 1. company register based data**

The generation of data on new firms based on official company registers has been used in a number of studies (eg Egelin et al., 1998).

### *Strengths of this method:*

- The database gives concrete names and addresses which - in principle - allows for in-depth sample surveys amongst founders
- Long time series may be available
- It may allow for international comparisons (in the case of similar legal frameworks w.r.t. firm foundation)
- Easy access

### *Weaknesses of this method:*

- The database does not include the majority of firm foundations because there is no legal requirement for firm registration for a large number of legal entities. Accordingly the firm foundation figures given here are substantially lower than the ones based on the other two methods
- On the other hand the company register does not distinguish between entrepreneurial foundation resp. inward investment and organisational re-registration for merely legal reasons (eg in Austria a shift from "GesmbH" to "GesmbH & Co. KG") which is especially misleading as it publishes far too high numbers of large-scale firm foundations (eg ones with more than 50 employees)
- The database misses large sectors of the economy because it is mainly focussed on the - vaguely defined - "profit-oriented" sectors and the updating is restricted to "business-to-business" relations
- There is no way of comparing natality and mortality rates due to different legal frameworks

## **ad 2. membership based data (eg Chamber of Commerce)**

### *Strengths of this method:*

- In the case of Austria the Chamber of Commerce database includes the majority of firm foundations in the artisanal businesses and industrial sector because there is a legal requirement for registration
- The database can give approximate figures on the foundation of "one-man-bands"
- The database gives concrete names and addresses which - in principle - allows for in-depth sample surveys amongst founders
- There are certain methods to distinguish organisational re-registrations from "genuine" foundation processes

*Weaknesses of this method:*

- The database misses some sectors of the economy because (in the case of Austria) it is restricted to the profit-oriented sector - for instance it misses large parts of the service sector
- Classification of sectors may not be based on European standards (eg NACE)
- In order to obtain job creation and job quality figures extensive sample surveys are necessary which often do not have sufficient response from the new firms - thus the monitoring aspect is limited.
- The database can not be used for international benchmarks.
- There is no way of comparing natality and mortality rates due to different legal frameworks

**ad 3. social insurance based ("administrative") data**

This approach which has been used for the WIBIS system is a very innovative one and shall be explained a bit more detail. In Austria as in many other countries firms have to report names of every single employee, its salary etc. as well as some basic information about the firm (sector, location). The basic idea for the registration of firm foundation activities is that this database gives figures on the number of jobs offered in a firm at the begin and at the end of the year.

- Firstly one can distinguish the group of growing firms (in terms of employment) from the stable and the shrinking firms.
- Secondly - and for the firm foundation statistics even more important - the "birth" and "death" of firms can be logged: A firm is defined as a newly founded one as soon as it registers at least one employed person for the first time, in other words when it moves from zero to N employed persons. Reciprocally the "death" of a firm is logged when it withdraws registration of all employed persons form the social insurance and does not re-register within a given period.

*Strengths of this method:*

- No additional surveys needed
- It is the only method which allows for a balance between natality and mortality rates of firms in a given period as they are based on exactly the same concept - as a result net effects of firm foundation activities in different sectors and regions can be quantified.
- The methodology gives the opportunity not only to monitor the employment growth of new firms but also the survival rates in different sectors and regions and also the quality of jobs created within a given period (according to salaries and qualification of the employed persons)
- Classification of sectors according to European standards (eg NACE)



*Weaknesses of this method:*

- It does not include "one-man-bands" - there is no information on the founder. However additional analysis of other social insurance bodies' data (eg social insurance for entrepreneurs) may be a way to add this group to the database.
- The database does not give concrete names and addresses so it can not be used for in-depth sample surveys eg on issues like "reasons hampering firm foundation and growth"
- There are problems in distinguishing organisational re-registrations from "genuine" foundation processes. Further analysis is required.

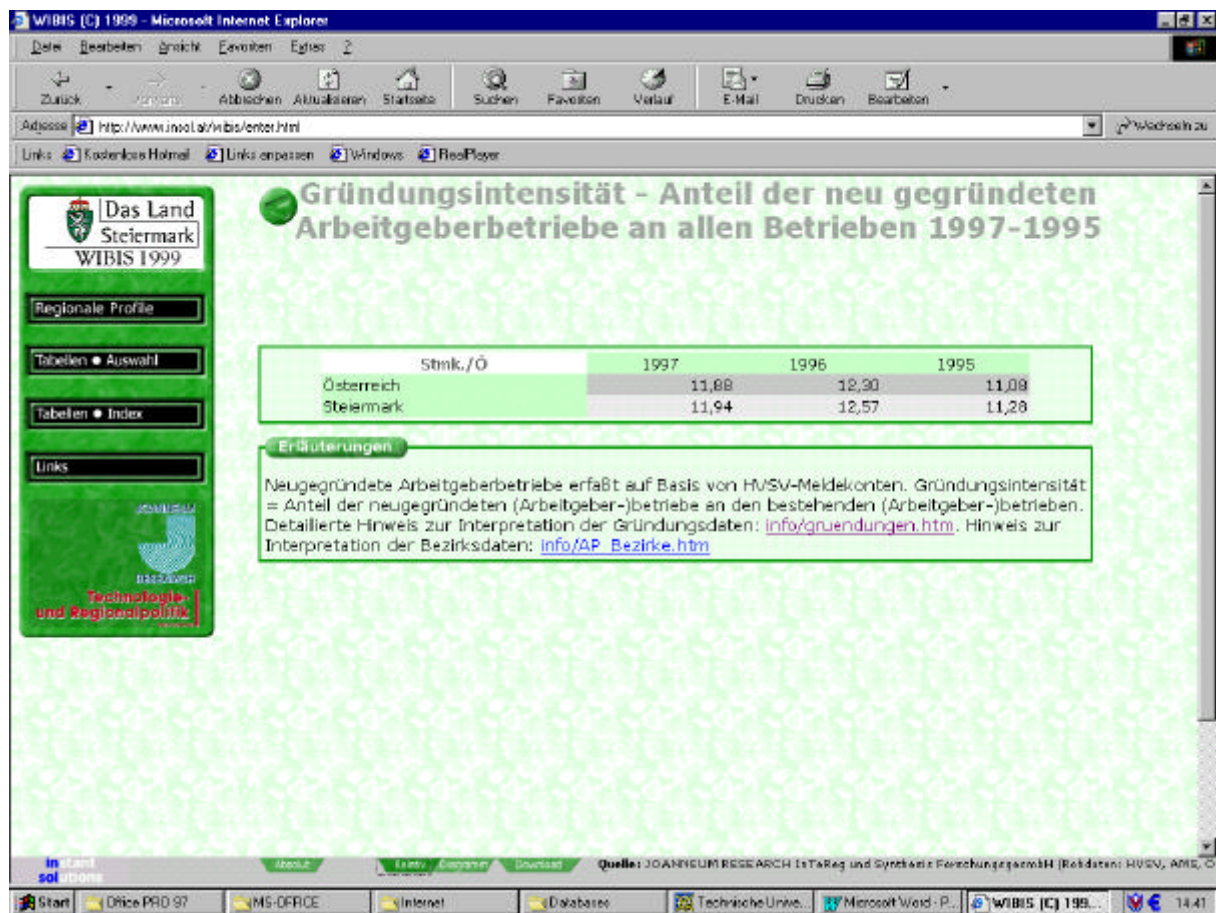
In the following pages a few preliminary results of the WIBIS firm foundation module are presented. As mentioned before the module is still under development - for instance the employment monitoring module has not been implemented so far.

## Some preliminary results of the WIBIS firm foundation module

Tab. 1: Firm Foundation rate

Austria vs. Styria

1997 - 1995



The table says that gross firm foundation rates in Styria and Austria have been rather similar over the past few years, with slightly higher rates in Styria (Adametz, Grasenick, Gruber, Habsburg-Lothringen, Steiner; 1999)

A closer examination of regional patterns of firm foundation is given in the following table:

**Tab. 2 :**

**Number of jobs offered in new firms (with min. 1 employed person)**

**in Austria, Styria and the 17 districts of Styria**

**1997 - 1995**

**Zahl der Arbeitsplätze in neu gegründeten Betrieben 1997-1995**

Styrien, 17 Bezirke	1997		1996		1995	
	Gesamt	Arbeitsplätze in neugegründeten Betrieben	Gesamt	Arbeitsplätze in neugegründeten Betrieben	Gesamt	Arbeitsplätze in neugegründeten Betrieben
Österreich	3.193.281	102.586	3.157.419	106.142	3.154.541	101.630
Styrien	428.477	12.702	419.797	13.854	415.621	13.350
Graz-Stadt	188.320	3.854	185.040	3.864	183.425	3.528
Bruck	17.111	551	17.105	1.688	16.108	589
Deutschlandsberg	12.159	468	11.930	489	11.581	364
Feldbach	12.336	373	11.864	402	11.579	696
Fürstenfeld	5.794	631	5.323	305	5.346	198
Graz-Umgebung	23.153	856	22.440	923	21.951	717
Hartberg	12.123	528	11.588	460	11.528	423
Judenburg	11.165	527	11.048	355	11.268	400
Kritzfeld	6.211	177	6.143	144	6.204	175
Leibnitz	13.679	475	13.326	468	13.139	682
Leoben	16.664	531	16.303	585	17.087	1.083
Liezen	19.793	520	19.764	652	19.869	811
Mürzzuschlag	9.012	265	9.097	261	9.071	242
Murau	4.653	202	4.660	203	4.684	199
Radkersburg	4.704	258	4.547	166	4.305	214
Voitsberg	9.559	378	9.416	286	9.326	400
Weiz	19.886	774	19.361	661	19.077	918
Bezirksübergreifend	43.154	1.325	40.931	1.943	41.073	1.701

Quelle: JOANNEUM RESEARCH IStAReg und Systematik ForschungsgesmbH (Bakdaten: HUVN, ANS, O)

It can be said that the job creation effects of new firms are evenly spread across the three meta-regions of Styria, the city of Graz area, industrial Upper Styria and the rural areas (Adametz, Grasenick, Gruber, Habsburg-Lothringen, Steiner; 1999). District-specific foundation rates can be identified but should be seen in a long-term view rather than the 3 year-period presented here.

Further analysis is required to identify sector specific developments. The following table takes a closer look at sectoral specifics:

**Tab. 3 : Number of jobs offered in new firms (with min. 1 employed person)**

**in Styria**

**in the technology-intensive sector (ie chemicals, machines/mechanical engineering, electronics, vehicles; according to NACE)**

**1997 - 1995**

**Zahl der Arbeitsplätze in neu gegründeten Arbeitgeberbetrieben im Technologiesektor 1997-1995**

Steiermark, 17 Bezirke	1997		1996		1995	
	Arbeitsplätze im Techn.-Sektor	Neu gegründete Arbeitsplätze im Techn.-Sektor	Arbeitsplätze im Techn.-Sektor	Neu gegründete Arbeitsplätze im Techn.-Sektor	Arbeitsplätze im Techn.-Sektor	Neu gegründete Arbeitsplätze im Techn.-Sektor
Österreich	194.950	3.333	197.359	3.587	201.507	4.563
Steiermark	29.257	256	28.408	352	27.740	313
Graz-Stadt	10.534	56	9.966	89	9.285	53
Bruck	797	11	763	101	784	47
Deutschlandsberg	2.094	7	2.096	3	2.079	2
Feldbach	223	3	226	6	239	93
Fürstenfeld	495	1	529	0	544	1
Graz-Umgebung	1.426	75	1.328	13	1.326	1
Hartberg	169	3	182	0	206	1
Judenburg	1.124	4	1.193	4	1.202	13
Knittelfeld	1.031	0	1.081	0	1.220	1
Leibnitz	1.501	12	1.482	11	1.445	10
Leoben	1.806	0	1.617	5	1.576	17
Liezen	835	6	777	1	780	0
Mürzzuschlag	515	0	522	0	503	1
Murau	165	25	159	0	164	0
Radkersburg	30	19	38	0	37	0
Voitsberg	466	1	471	1	451	2
Weiz	2.433	4	2.365	0	2.353	9
Bezirksübergreifend	3.596	30	3.599	119	3.551	61

Quelle: JOANNEUM RESEARCH (StatReg und Systematik ForschungsgesmbH (Bakdaten: HUSV, ANS, O

The table adds a quantitative dimension to the central issue to which extent new firms contribute to economic structural change w.r.t. to technology orientation. Against the Austrian benchmark the Styrian foundation rate in this sector is considerably higher. This may lead to the tentative conclusion that in Styria new firms contribute to structural change towards technology-oriented and knowledge-intensive sectors to an above-average extent. This preliminary thesis is backed by the Styrian firm foundation rates in the business service sector which are also higher than the Austrian average (Adametz, Grasenick, Gruber, Habsburg-Lothringen, Steiner; 1999)



**Tab. 4: Number of new firms (with min. 1 employed person)**

**in Styria**

**by sectors (NACE) and**

**growth patterns (closed/shrinking/stable/growing/newly established firms in 1997 with at least 1 employed person)**

**Steiermark**  
Zahl der Betriebe 1997 nach Branchen und Beschäftigungsdynamik

nach 21 Wirtschaftsklassen	Gesamt = 100 %	stigelegte Betriebe	schrump-fende Betriebe	gleich-bleibende Betriebe	wachsende Betriebe	neu gegründete Betriebe
Alle Wirtschaftsabteilungen	42.069	9,57	14,32	46,11	19,06	11,94
Unbekannte Wirtschaftsklasse	2	0,00	0,00	100,00	0,00	0,00
Land- und Forstwirtschaft	2.428	7,37	5,77	59,64	10,54	16,68
Bergbau	114	7,02	27,19	38,60	21,93	5,26
Versorgungsindustrie	1.032	6,69	21,32	40,89	24,90	6,20
Grundstoffindustrie	180	8,39	21,67	36,11	25,56	9,39
Bekleidung	340	10,00	20,29	46,76	17,35	5,59
Sonstige Sachgüterproduktion	2.002	8,64	24,23	34,57	25,32	7,24
Chemie	129	11,72	14,06	29,84	25,79	9,59
Maschinenbau	169	7,69	16,57	43,20	24,85	7,69
Elektrotechnik/Elektronik, Feinmechanik	318	8,81	18,87	41,82	17,30	13,21
Fahrzeugbau	71	11,27	19,31	32,39	25,35	12,69
Energie- und Wasserversorgung	147	4,08	12,24	55,78	17,01	10,88
Bau- und Baunebengewerbe	2.999	10,17	21,57	29,11	27,88	11,27
Handel, Lagerung, Instandhaltung, Reparatur	9.287	9,84	16,41	45,11	19,55	10,09
Beherbergungs- und Gaststättenwesen	5.387	11,51	17,32	40,13	19,71	12,33
Verkehr	1.626	10,33	17,90	33,95	24,85	12,98
Geld- und Kreditwesen	469	7,46	15,35	43,71	15,78	17,70
Wirtschaftsdienste	6.331	9,75	9,84	53,49	14,11	14,63
Öffentliche	993	3,12	14,20	61,33	17,93	3,42
Verwaltung/Gebietskörperschaften	720	15,14	10,97	30,97	17,36	25,56
Unterricht und Forschung	2.579	5,00	11,59	59,09	15,86	9,46
Gesundheit und Sozialwesen	4.747	11,61	8,59	52,88	13,12	13,80

**Erklärungen**

Quelle: JOHANNES RESEARCH InTeReg und Systelux ForschungsgesmbH (Kohorten: HNSU, AMS, OS)

A rather unique feature the WIBIS firm foundation method provides is the balancing of natality and mortality of firms, as a total and in individual sectors. This estimation of net effects adds quantitative figures to the question whether the new firms' contribution to employment and growth is sustainable. A high net growth effect (defined by "natality" minus "mortality") is an indicator for a sustainable impact of new firms in a specific sector. For instance the balance shows that 70% of new jobs have been offered in the service sector, 14 % in manufacturing, 12 % in housing and construction, plus a residual of 4 % . (Adametz, Grasenick, Gruber, Habsburg-Lothringen, Steiner; 1999)

However in this state of development only the job creation effects in the first year of existence can be given - a monitoring of growth and survival rates of new firms within a longer period of time will be subject of further development in the next few months. Then it will be possible to give an even better view of the sustainability of new firms' growth and also to give new input to the discussion whether new firms create relatively high qualified jobs.

Other development paths of the system will be presented in brief at the end of this paper. In this chapter the methodology and preliminary results of the WIBIS firm foundation module were presented. However the firm foundation module is just one element of the WIBIS information system. In order to give a more complete picture the basic standards of the Economy and Innovation Policy Information System, the data quality standards and special features are presented in the following paragraphs.

### ***The WIBIS Economy and Innovation Policy Information System and its features***

#### Data standards and indicator sets

- WIBIS data is current (max. 1-2 years), it is presented in time-series and in the field of employment figures new generated prognoses are included which combine bottom-up and top-down elements. The ever accelerating change in the economic environment makes the provision of current and near-future-related data esp. on firms and jobs offered an urgent need. Additionally time series data gives new insights into long term trends. However, trade-offs between data availability and disaggregability must be considered.
- WIBIS data is regionalized (NUTS-III or district level):  
It can be said that there is a fair amount of economic data available at NUTS-II-level (ie in Austria at Province level), as opposed to data at NUTS-III-level or lower where enormous time-lags or even completely missing data are the rule rather than the exception. Although there is a general trend towards larger regional administrative units there is also the opposite trend - a need for highly regionalized data stemming from a growing self-confidence of micro-regions (ie districts level in Austria)
- WIBIS data is based on surveys covering the total population as opposed to sample surveys (wherever possible and applicable):  
for obvious reasons annual official surveys have so far failed to include important economic entities: non-market-oriented sectors such as administration or public healthcare on the one hand and very small enterprises on the other are usually not the target group of these surveys, although the contribution of SMEs and even VSMEs to employment and growth has been widely recognized.

W.r.t. figures on employment and firms WIBIS gives a far more complete picture of the economy. To give an example it provides current figures on the regional sectoral structure and employment dynamics eg in the technology-oriented and business service sector. A view of the total scope of economic activities is necessary in order to put these sectors into perspective.

- Firm size and sectoral data are given (see before):  
The system contains data on firms of all sizes and sectors (as mentioned above) and allows for the distinction of SMEs and LEs in terms of employment dynamics, sectoral shifts etc
- New forms of employment are being considered:  
A number of new types of contractual employment agreements has emerged in the last few years which has not been sufficiently considered by official employment statistics. If one misses these groups of the workforce the general picture of the regional and national employment situation may be blurred considerably.
- Compliance with European standards:  
A number of regional and even national economic surveys does not use standard classifications (eg NACE classification) and therefore do not comply with European or international findings.
- Qualification related data is provided:  
The term "knowledge based economy" and the design of "intellectual capital indices" has become a major issue at science and other (eg location marketing) level. This has led to a broad scope of studies and surveys of sometimes doubtful quality. WIBIS has had the objective to deliver current regionalized educational and vocational data of the total workforce, in order to discover the knowledge base of firms in different sectors and regions as well as its development over the years. A special emphasis is put on the technological knowledge base.

## Organisational and user interface related attributes

- Existing data is being used wherever possible, additional surveys are being limited to a minimum:  
This requirement stems from a growing concern at policy and intermediaries' level that enterprises more and more can not or are not willing to cope with the growing number and volume of surveys they have to participate. This is even more true with SMEs. Therefore WIBIS delivers the major part of data by using and merging existing sets of data (which by the way is a Schumpeterian idea). Additional surveys remain the exception and are based on concise questionnaires.
- Interpretations are given with the quantitative data:  
Policy makers and administrative bodies have been complaining that they are frequently confronted with large volumes of statistical tables from different sources which often do not give any

interpretative messages and sometimes even lack proper definitions of sources and methods used. WIBIS delivers figures *plus* reports where contextualisation and interpretation of data is being given - a good way to transform data into information.

- Benchmarking figures are provided:

The opportunity to put the given regional figures into the national and - where applicable - European perspective seems an obvious and basic requirement - however this standard has not been met by a number of existing data sources and information systems.

- Continuous and regular availability of data can be guaranteed:

A long-term project like WIBIS has to be based on data sources which on the one hand offer a continuous availability of past-related data and even more important will be available in a long-term perspective.

- User-friendly design of the information system:

WIBIS has been aimed not only at developing new ways to generate and obtain relevant quantitative data but also at the design of more user-friendly statistical information systems. Hence the user interface is accessible from standard office hard- and software so that little or none additional training is required. It provides info on demand and facilitates medium and long term monitoring. Its layout and presentation are in line with Corporate Design standards.

- Reference data character:

The system can be used as a reference data sourcing tool in everyday routines, it eliminates unnecessary duplication of economic data sourcing activities. In general the system will contribute to a higher standard of political discussion on regional economic issues by providing and interpreting relevant data.



### ***Further development: cluster and innovation data***

The information on new firms, their sectoral and regional spread, their growth perspectives, survival and closure rates and the quality of jobs they provide presented so far has been obtained without any additional surveys.

In order to obtain some crucial additional information the WIBIS team is about to conduct a survey in order to "enrich" the database with respect to two important aspects: innovative behaviour and regional clustering of firms.

Adequate methods for the measurement of **innovation in SMEs** are being applied: The structural changes within the last two decades have made the continuous development and marketing of new goods and services the key entrepreneurial strategy. Stimulating and assisting the innovation process has therefore more and more become a primary objective of structural policy initiatives. However innovation measurement has often focussed on innovation processes typical for larger enterprises. Therefore it has been considered a major objective to include SMEs in the target group of the respective survey and - even more important - to apply respective innovation indicators (eg educational data in the framework of innovation measurement)

The collaborative behaviour of enterprises is being monitored (**cluster monitoring**): During the last decade there has been a renaissance of flexible networks or clusters as a form of industrial organisation which can increase productivity and competitiveness. A number of empirical surveys has been carried out on international as well as on Austrian level to identify competence clusters (Clement et al., 1994; Steiner et al. 1996). WIBIS has had the objective to develop and apply some new network indicators with a special emphasis on knowledge transfer in order to identify collaborative innovative behaviour amongst enterprises and between enterprises and complementary regional bodies (universities, research institutions, transfer and economic promotion agencies).

In this paper the additional survey shall be presented "in a nutshell".

*Issues to be addressed include:*

- Do NTBFs, spin-offs and IFSMEs (innovative fast growing SMEs) play a different or more important role in the innovative process than other firms do ?
- Are there hidden "knowledge" champions ie businesses/sectors which have a sound (technological) knowledge base but are not identifiable by standard industrial classification ?

- What are the differences between SMEs and LEs in their innovative behaviour ?
- Does co-operation and/or and the quality of co-operation determine a SME's innovative success ?
- What are the roles of the supporting and related industries and institutions in the innovation process ?
- What are the major regional competence clusters ?

The cluster and innovation *survey questionnaire* is roughly structured as follows:

- innovation expenditure
- proportion of sales and export sales from new products
- Funding gained for R&D resp. innovation projects, success rate
- patent activities (if this indicator is applicable in the respective sector)
- acquisition and transfer of technological knowledge
- co-operative projects in the field of technological innovation, partner structure for the initial and implementation phase of innovation projects, variety of partners.
- quality of co-operation (clusters, networks) with knowledge-generating institutions and other firms
- educational background of the entrepreneur
- knowledge-base of the workforce
  - vocation, qualification level and field of education
  - past and future share of engineers within the workforce
  - future demand for highly skilled labour especially w.r.t to engineers and scientists

A central new element in the survey are qualification indicators. They can be seen as complementary or even as a substitute to traditional R&D and patent indicators. The use of indicators based on educational data has been pioneered by the School of Technology Management and Economics of Chalmers University of Technology in Gothenborg, Sweden (Jacobsson, S. et al., 1996). The basic assumption is that technological knowledge is mainly "embodied" in scientists and engineers and that their work is mainly technology-related. On an operative level educational data is used for a more intelligent classification of enterprises according to the respective knowledge base, beyond conventional product classifications or industry codes. Moreover this indicator is very suitable for surveying SMEs' innovative activities for it does neither require the presence of R&D departments nor patented knowledge.

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