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International Data Sources on Enterprise Start-up Figures and Preliminary Results from an Analysis of Start-up Rates in Selected OECD-Countries for the Period 1995-2000

von

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1. Introduction

The world economy and the OECD countries in particular are currently undergoing a phase of rapid and fundamental economic changes. Countries that in the post-war period have enjoyed strong comparative advantages (mainly) built on high quality production in the manufacturing sector, are now increasingly challenged by new competitors. The spread of new information and communication technologies has contributed to intensified competition on traditional markets and to the creation of entirely new, high-tech and service industries.

The future welfare position of the OECD countries will be based on their ability to capture comparative advantages in these new knowledge based industries. Because of the inherent qualities of knowledge – uncertainty about its economic value, information asymmetries between the agent possessing the knowledge and third parties interested in it, and high transaction costs – entrepreneurship becomes more important in a knowledge based-economy (cp. AUDRETSCH/THURIK 2001, p. 12 f. and AUDRETSCH/THURIK 2000, p. 28). Hence, closely linked with the current changes is a shift in the industry structure away from a managed economy towards a more entrepreneurial one. This entails an increased role for new, innovative small firms. They are an integral part of the dynamic renewal process that pervades and defines market economies. New and small firms play a crucial role in experimentation and innovation that leads to technological change, productivity and employment growth.

There are concerns that Germany featured a deficit in enterprise births compared to other OECD-economies. However, in order to make *absolute* start-up figures comparable across countries of different sizes, they have to be standardised by placing them in relation with specific stock figures such as the number of established enterprises or the size of the labour force. The present paper starts with a discussion of two different approaches which are commonly used for the calculation of enterprise start-up rates.

Afterwards, the national data sources on enterprise start-up figures of six OECD countries (Germany, France, United Kingdom, Italy, Spain and USA) are presented in some detail, with a particular focus on the German system. The rather detailed presentation of the data sources is also intended to create an understanding for the difficulties involved in comparing start-up figures on an international level.

Based upon these currently available (i.e. unstandardised) statistical data, entry rates are calculated for the six countries under consideration. The subsequent analysis provides some *preliminary* evidence on each of the countries' position with regard to the trend development and absolute level of the start-up rates. Even more importantly, it becomes obvious that there is no unequivocal way of interpreting enterprise start-up rates. Instead, they have to be interpreted cautiously by considering the vast heterogeneity of start-up projects and the different economic environments in the respective countries.

2. Definition and Significance of Enterprise Start-up Rates

Countries vary largely in size and economic potential, for example with regard to the number of employees or established enterprises. Hence, measuring the *absolute* number of enterprise start-ups and comparing them across different countries does not generate any meaningful results. In order to determine entry *rates* which are in principle comparable across countries and over time, the absolute number of new firms (flow figures) has to be put into relation with specific stock figures. These start-up rates provide a more reliable yardstick for measuring the intensity of start-up dynamics.

2.1 Challenges Related to International Comparisons of Enterprise Start-up Rates

In principle, international comparisons of enterprise start-up rates can produce reliable, meaningful results only if all analysed countries apply the same definitions and methodologies for processing the statistical data on start-ups and established enterprises. Furthermore, the underlying data sources would have to be designed in the same way in each of the countries under investigation. Or at least the national data bases would have to be made comparable by creating (new) data bases on common standards from various national data sources. These theoretical preconditions, however, are currently not being met. That is the reason why international organisations like the OECD and Eurostat do not compile or publish any such data at the moment.[1] The present paper does not aim at presenting fully comparable data on enterprise start-up rates in the six OECD countries under consideration. This would also require to determine a precise, universal definition of enterprise start-up and to standardise the data accordingly. This, however, is beyond the scope of this paper. Instead, the goal is to provide a first impression of both, the dimension and the trend development of enterprise start-up rates in the various countries as well as to point to difficulties related to an interpretation of start-up rates.

In general, with regard to the comparison of international start-up rates it is of high importance that issues related to *coverage* are defined in the same way. Basically, problems of coverage refer to the general question, which statistical incidents are included in the data and which ones are not. The following list presents a selection of some of the most important aspects which would have to be addressed and standardised for international comparisons:

- Which underlying *definitions* of "enterprise start-up" and "established enterprise" are applied?
- In particular, does the definition of enterprise start-up refer exclusively to new *independent-original firms* (i.e. entirely new firms)? How are new local units (subsidiaries), mergers, take-overs treated?
- Which is the unit of analysis with regard to start-up figures? Does it refer to *enterprises* (as combination of productive factors) or to *people* entering self-employment (for the first time)?
- Is there a considerable *delay* between the date of business start and the date of registration? Which *incident* marks the reason/motive for registration (e.g. start of business activities, exceeding of specific thresholds, recruitment of the first employee etc.)? Does the date of registration generally coincide with the date when a business begins to compete actively in the marketplace?
- Do specific *size-related thresholds* apply for the recording of start-ups or for the stock of enterprises (e.g. only enterprises exceeding specific turnover or employment thresholds are covered)? In particular, is the large number of *small-scaled start-ups without employees* also recorded?
- Do (organisational) *modifications* of existing enterprises increase the start-up figures (e.g. change of location, legal form, economic activities, ownership etc.)? Or can these incidents be *separated* from real start-ups (which actually do increase the business population)?
- Are there start-ups in particular *economic sectors* which are not covered (e.g. in agriculture, mining, liberal professions)?
- Do the start-up figures focus on business activities which represent the owner's *primary source of income* or do they also include start-up activities as part-time or secondary job?

- How are *seasonal* and *reactivated firms* treated?
- Do the data (partly) rely on *projections, corrections and estimations* or are they entirely based on the precise recording of each individual business?
- Are flow figures (start-ups) *and* stock figures (number of established enterprises) based on the *same* definitions and methodologies (e.g. sectoral coverage)? That is to say, do all recorded start-ups enter the stock of established enterprises and vice versa have all established enterprises been recorded as start-ups? Problems occur when flow and stock figures stem from different data bases.
- Do the start-up data include *dormant* new firms? Does the stock of enterprises contain a large number of *inactive* enterprises?
- Do *changes in methodology* occur over time (e.g. increase of thresholds)?

Section 3 addresses some of these methodical issues when providing some basic information on the characteristics of the various national data sources in the six selected OECD countries. Therefore, the enterprise start-up rates as calculated on the basis of currently *available* statistical data (cp. section 4) are easier to interpret and to put into perspective.

In economic literature usually two different approaches are followed in order to standardise the start-up data (cp. AUDRETSCH/FRITSCH 1994, p. 106 f. and FRITSCH 1997, p. 439-441).

2.2 The Ecological Approach for Calculating Enterprise Start-up Rates

The first method uses the stock of existing businesses at the end of the previous year as the denominator. Such an entry rate measures the intensity of start-up activities relative to the size of the *existing* business population. This method is commonly known as the "ecological approach" as it represents an indicator for the "fertility" of the business population with respect to the generation of new business units. It also provides some evidence on the capacity of an economy to renew or to rejuvenate itself.

The ecological approach standardises the number of start-ups by the number of *existing* enterprises. Hence, the (employment-) size-structure of the enterprise sector is of some importance. All other things being equal, national economies characterised by a relatively large number of (mostly small scaled) firms

will tend to feature lower start-up rates (indicating *lower* intensities of start-up activities) than countries marked by a prevalence of larger business units.[2] Thus, in economies where most of the employment is accounted for by small enterprises, each new firm has a relatively *low* impact on the overall ecological entry rate. Exactly the opposite holds true for economies where large enterprises come up for a relatively large share of employment. In these cases, each new firm has a relatively large influence on the ecological entry rate (cp. AUDRETSCH/FRITSCH 1994, p. 110 f.).[3]

However, a high prevalence of smaller-sized enterprises is usually considered as an advantage for the creation of new start-ups (cp. VIVARELLI 1991, p. 220 and EGELN/LICHT/STEIL 1997, p. 141). This is explained by the fact that employees in smaller enterprises have a much broader scope of tasks to perform than in larger firms where they tend to concentrate on more narrowly defined tasks. Larger enterprises, thus, take advantage of the benefits of specialisation and "mass-production". Small, flexible firms usually cannot afford to have specialists focussing on a small number of tasks only. Instead, their employees face a more challenging work environment giving them the possibility to acquire a broader knowledge of how an enterprise is run and organised.

Employees in small firms are also in much closer contact with the owner of the business. This allows them to get a better understanding of which personal and professional capabilities and qualifications are essential for managing an enterprise. The owner of a small business thus represents a role model for his employees who might become interested in entering self-employment themselves. By experiencing the necessities and requirements of running a business close up on a day to day basis, employees in small firms seem to be particularly well qualified for leadership and management tasks when becoming self-employed themselves. Moreover, employees of small enterprises usually have a good understanding of the market their enterprise is operating in. Thus, employment in small enterprises does not only provide broadly defined professional capabilities but also a precise knowledge of the market conditions in a specific economic sector. Both factors increase the chances of survival of newly started businesses.

To conclude, a size structure marked by a large number of small enterprises exerts a *favourable* impact on new business formation. At the same time, however, a large number of small existing enterprises, has ceteris paribus a *negative* impact on ecological entry rates, although entry rates are meant to mea-

sure the intensity of start-up activities in a country. These methodological problems occur because the ecological entry rate's scaling variable (i.e. denominator) is not exogenous to the numerator (cp. LOVE 1995, p. 156).[4]

Therefore, it seems to be appropriate to employ a second, complementary entry rate which uses an *exogenous* denominator for standardising the number of start-ups.[5]

2.3 The Labour Market Approach for Calculating Enterprise Start-up Rates

This second method, termed "labour market approach", uses some measure of the population (e.g. labour force or population in working age) in order to standardise the number of new firms. It is based on the theory of entrepreneurial choice which assumes that all members of the workforce are basically confronted with the decision to work either as a dependent employee or to start-up and draw their income from self-employment (cp. EVANS/JOVANOVIC 1989). Thus, all members of the workforce are seen as *potential* entrepreneurs (i.e. potential founders of new firms). They represent the *source* from which new firms are likely to arise.

The entry rate according to the labour market approach might be interpreted as the propensity of a member of the workforce to become self-employed and to start a new firm (cp. FRITSCH 1997, p. 439). The degree to which potential entrepreneurs turn this general opportunity into practice also provides some evidence on the entrepreneurial culture in a country.[6]

The labour market approach often uses the labour force as denominator. The labour force, in the sense of *active* population, comprises employed persons as well as *registered* unemployed persons seeking employment.[7] By contrast, inactive persons who neither perform nor search for employment are not covered. International comparisons might be distorted when the analysed countries feature largely differing labour force participation rates. Distortions can arise, for instance, when larger groups of people – although in general being able to perform some work – are (officially) not disposable for the labour market. This might occur, for example, by giving invalidity status to a significant share of people or by allowing early retirement for workers over 50 years of age.[8] By understating the size of the labour force, these countries tend to show ceteris paribus higher entry rates, which in turn overstate the actual extent of start-up activities.

A way to circumvent these problems is to resort instead to the entire population in working age between 15 and 64 years. This variable does not differentiate between employed persons and (for different reasons) non-employed people. Furthermore, and rather important, evidence from Western Germany has shown that a significant portion of enterprise starters are *neither* recruited from the employed *nor* from the registered unemployed.

Based upon figures originating from the yearly German socio-economic panel (SOEP), Deutsches Institut für Wirtschaftsforschung (DIW) analysed the characteristics of German enterprise starters. In the period from 1990 to 1996, in total 1,5 million people became newly self-employed in Western Germany. 56,0 % of them entered self-employment from dependent employment, 13,7 % from registered unemployment. Interestingly, almost one third (30,3 %) of the new self-employed were either apprentices or inactive before starting their own firm (cp. DIW 1998, p. 688). Thus, many people outside the officially recorded labour force seem to consider self-employment as an important alternative to entering the labour market as an employee. Therefore, in section 4, the entry rate in its *labour market variant* will be calculated by using both, the labour force and the population in working age as denominator.

Eventually, to sum up, entry rates as calculated in section 4 will be based on the following definitions:

- Enterprise Start-up Rate 1 := Enterprise Start-ups / Stock of Established Enterprises in the Previous Year (in %)
- Enterprise Start-up Rate 2 := Enterprise Start-ups / 1.000 Labour Force Members in the Previous Year (in absolute numbers)
- Enterprise Start-up Rate 3 := Enterprise Start-ups / 1.000 Inhabitants in Working Age (15-64) in the Previous Year (in absolute numbers).

2.4 Is there an Optimal Enterprise Start-up Rate?

In recent years a group of authors has dealt with the issue of linking entrepreneurship to growth.[9] Within the framework of this approach, some theoretical considerations and empirical analyses have been undertaken with regard to the question of an optimal degree of entrepreneurial activities.

Due to lack of other more appropriate data, these studies usually choose the self-employment rate for measuring the so-called "rate of entrepreneurship" or

"rate of business ownership". Thereby, the number of business owners (in all sectors excluding agriculture) is related to the size of the labour force in 23 OECD countries between 1974 and 1998 (cp. AUDRETSCH/THURIK 2001, p. 18). Hence, the rate of entrepreneurship measures the *stock* of self-employed businesses *owners* and not the creation of new enterprise start-ups.[10]

It is recognised that each country has a broad range of characteristics which influence the optimal degree of entrepreneurship. Differences in institutions, policies and history may contribute to each country having a different optimal rate of business ownership. However, the concept of "optimal size structure" upholds that an economy can have either too few or too many SMEs. Thus, the relationship between entrepreneurship and growth is *non-linear*. This also implies that depending on the number of existing business units, a country might indeed feature too few or too many enterprise start-ups.

A *shortage* of business owners (e.g. caused by too few start-up activities and / or too many enterprise closures) is likely to diminish competition with negative effects for static efficiency and competitiveness of the national economy. It will also reduce variety, learning and selection and thereby harm dynamic efficiency (innovation). On the other hand, an *over-supply* of self-employment (e.g. achieved by too many start-up activities and / or too few enterprise closures) causes the average enterprise size to remain below optimum. It will result in large numbers of marginal entrepreneurs who absorb capital and human energy that could have been allocated more productively elsewhere.

The authors develop a model to determine the "equilibrium" rate of business ownership as a function of GDP per capita (cp. CARREE/THURIK 2002, p. 19 and CARREE/van STEL/THURIK/WENNEKERS 2000). The estimation results show that a *deviation* of the actual rate of business ownership from the optimal rate has a significant negative impact on economic growth. While it appears that most countries have too few self-employed business owners relative to the optimal value, an obvious exception is Italy. This indicates that the high level of self-employment in Italy is not efficient. In fact, according to the model's estimation results, it seems to have a relatively large negative impact on economic growth. Countries with too low self-employment rates compared to the equilibrium include the Scandinavian countries and also Germany.

While in practice it appears to be rather difficult to determine the exact value of an optimal rate of entrepreneurship for a country, the research results suggest

nevertheless that one cannot simply assume a linear relation between the rate of business ownership (or start-up rate respectively) and the economic well-being of an economy. Hence, a-priori there is no reason to assert that higher start-up rates are automatically connected with a better economic performance in terms of employment or GDP growth.

3. National Data Sources on Enterprise Start-up Figures in the Analysed OECD Countries

In this section the various national data sources on enterprises start-ups are described for each of the six analysed countries, whereby the German system is presented in some more detail. Although the analysis generally spans the period from 1995 to 2000, in some cases due to lack of available data, some years had to be left out.

Statistical data with regard to labour force and population in working age (i.e. aged 15 to 64) stem from the OECD's Labour Force Statistics (edition 2001) (cp. OECD 2001). Thereby, the total labour force comprises employed persons as well as unemployed persons seeking work. Excluded are inactive persons who do not search for employment.

3.1 Germany

In Germany, the Institut für Mittelstandsforschung (IfM) Bonn compiles statistical data on enterprise start-up activities. Thereby, IfM Bonn distinguishes between different types of entries, that is to say firms entering the market (cp. table 1).

Table 1: General typology of entries

	Derived entries	**Original entries**
Dependent entries	Merger/Change of capital owner	Creation of a new establishment (local unit)
Independent entries	(A person) Entering self-employment by way of taking over an existing enterprise	***Enterprise start-up*** © IfM Bonn

Source: SZYPERSKI/NATHUSIUS (1977, p. 27).

According to the definition applied by IfM Bonn, only those new businesses are recorded as "enterprise start-up" which constitute a *new original*, *independent* economic unit ("selbständig-originäre Gründung"). Thus, it is decisive that the *new enterprise* is (1) economically and legally *independent* from other existing

enterprises (--> **independent** entry) and (2) enters the market for the first time as a new combination of productive factors (--> **original** entry (as opposed to e.g. take-overs or mergers)).

For instance, if an old-established entrepreneur creates a new independent-original economic unit, then this new business is indeed counted as enterprise start-up. If, however, he/she creates a new establishment (local unit, subsidiary) *linked* to the already existing enterprise, then this incident is not regarded as an enterprise start-up.

IfM Bonn's data on enterprise start-ups are based on "trade registration"- figures ("Gewerbeanmeldungen") collected by the local trade registration authorities. In Germany, economic life is basically characterised by the freedom to trade, thus, there is no *general* duty to apply for permits before starting economic, profit-oriented activities. However, as required by §14 of the German Trade Regulation Act ("Gewerbeordnung"), the start of every *commercial*[11] economic activity has to be *notified* to the local authorities. Based upon these notifications, the local authorities keep a trade register ("Gewerberegister") whose main aim is to provide an overview of the number and type of firms in their respective districts (e.g. for surveillance of business activities).

Hence, notifications mainly serve administrative purposes and are not primarily intended to build the cornerstone of German enterprise start-up statistics (cp. ANGELE 2001, p. 295). This is the reason why the trade registration figures include a number of incidents which do not represent enterprise start-ups in the sense of IfM Bonn's definition.[12] Therefore, the collected trade notification data have to be processed in order to calculate an *approximation* for the actual number of enterprise start-ups.

The approximative character of the data also becomes obvious when considering that by their nature, *trade* registration figures do not include the liberal professions (e.g. medical doctors, architects, lawyers, tax consultants, authors, artists etc.). Furthermore, primary production activities such as agriculture and forestry, fishery, wine-growing and mining are also exempted from the duty to register.[13]

However, one of the most important advantages of IfM Bonn´s enterprise start-up figures relates to the *inclusion of small scale traders* (in particular one-person-companies).[14] This is of particular significance as a clear trend towards start-ups in the form of one-person-companies can be identified since the

1990's (cp. LEICHT 2000, p. 80-82 and WEIßHUHN/WICHMANN 2000, p. 23 f.). Other available data sources on start-up activities, however, – due to their very own systematics and methodologies – are not able to mirror these developments at all or not that explicitly.[15]

It is, however, of major importance to depict start-up activities in the most comprehensive way in order to be able to analyse any possible shifts in their composition over time. Thus, it is vital to obtain a complete picture which does not focus only on one particular segment of (e.g. larger scaled) start-up activities. Furthermore, one-person-companies should not be negatively assessed right away, although in the beginning they generate only limited employment effects. In fact, at first, jobs are created mostly for the owner-manager himself, but in some cases also for assisting family members and/or part-time workers. Founders of one-person companies might also follow economic rationality, when they start small and expand only when more reliable information on market response and opportunities as well as on their own management capabilities are available (--> expression of the prudence concept) (cp. JOVANOVIC 1982). Moreover, one-person-companies seem to fulfil an important seedbed function for enterprise and employment growth (cp. CLEMENS/KAYSER 2001, p. 21).

Another advantage of IfM Bonn's approach of measuring start-up activities in Germany is the timeliness of information. Data on enterprise start-ups are usually available with a lag of three to four months only. Furthermore, data can be comprehensively differentiated by regions and economic sectors. Moreover, in contrast to almost all other data sources on start-up activities, IfM Bonn's statistical data have the considerable advantage of measuring more precisely *when* the creation of a new enterprise actually occurs.[16] Thus, the time difference between the date of business start and the date of registration is – in most cases – very small. Indeed, due to a legal change in 1999, enterprise starters are now obliged to register their new business at the time of the *actual* business start and not just some time *before* business start (as foreseen by the old legislation). The new rule, thus, aims at discouraging the registration of dormant companies and at improving the reliability of statistical data.[17] However, it cannot be ruled out completely that some enterprises register with the local trade registration authorities without actually starting to operate in the market. For instance, some (bogus-) businesses are registered only in order to receive special documents which allow the owner to buy goods for private purposes at (more favourable) wholesale conditions.

Table 2: IfM Bonn's methodology for calculating enterprise entry data, Germany, 1996 - 2001

	1996	1997	1998	1999	2000	2001
Trade registrations (total)	**780.000**	**803.000**	**811.000**	**781.000**	**755.000**	**729.000**
- Registration of (dependent) establishments / local units	52.000	52.000	52.000	52.000	51.000	47.000
- Incoming relocations of firms	24.000	31.000	33.000	33.000	37.000	38.000
- "dormant" start -ups (estimate)*	62.000	65.000	65.000	61.000	60.000	60.000
- Part time start-ups (estimate)**	70.000	74.000	74.000	70.000	68.000	68.000
= (the resulting figure by and large hints at the number of) **people entering self-employment** (*maximum* value)	**572.000**	**582.000**	**588.000**	**565.000**	**539.00**	**516.000**
- Take-overs (in a wide sense; includes various forms)***	127.000	130.000	131.000	125.000	118.000	107.000
= Enterprise start-ups (independent-original)	**446.000**	**453.000**	**458.000**	**440.000**	**421.000**	**409.000**
Thereof:						
Major (i.e. presumably larger scaled) enterprise start-ups	165.000	158.000	163.000	161.000	149.000	137.000
Small business owners (small scale traders) (residual)	281.000	295.000	295.000	279.000	272.000	272.000
						© IfM Bonn

* Based upon empirical analyses, a fixed 15 % share in the *initial* number of newly registered *small scaled* businesses is used in order to determine the number of dormant firms not entering the market after registration (cp. CLEMENS/KAYSER 2001, p. 42).

** Based upon empirical analyses, a fixed 20 % share in the *initial* number of newly registered *small scaled* businesses (corrected for dormant firms) is used in order to calculate the number of part-time start-ups (cp. CLEMENS/KAYSER 2001, p. 43).

*** Such as: (1) purchase/lease of existing enterprises/establishments, (2) hereditary succession, (3) change of legal form and (4) joining of additional business owners.

Source: Calculations by IfM Bonn.

By stark contrast, other data sources usually record start-ups only when an enterprise exceeds specific registration-thresholds, e.g. related to employment or turnover.[18] Firms, however, might have already been operating in the market for quite some time before exceeding these thresholds. Thus, their first appearance in these start-up statistics does not necessarily coincide with their actual foundation. Indeed, rather long delays in recording enterprise start-ups may

occur. Hence, with respect to timing, IfM Bonn's data follow start-up activities much more closely.

In detail, IfM Bonn's method for calculating enterprise start-ups in Germany works as shown in table 2.[19] Thereby, the category "major enterprise start-ups" ("Hauptniederlassungen") covers those new independent-original firms which are founded by (1) a juridical person *or* (2) a partnership company *or* (3) by a natural (physical) person who (a) enters the commercial register (i.e. register of corporations) *or* (b) the craft register *and/or* who (c) employs at least one employee liable to social security contributions. The afore mentioned qualifying factors are meant to *indicate* larger scaled enterprise start-ups. The remaining independent-original start-ups are made up by the large group of micro business owners (calculated as residual).

All in all, one should bear in mind that statistical data based upon trade registration figures reflect enterprise start-up activities quite well on the whole, nevertheless they do not provide a complete picture of all entries.

Table 3: Compilation of start-up rate related data, Germany, 1995-2000

	1995	**1996**	**1997**	**1998**	**1999**	**2000**
Enterprise start-ups	–	446.000	453.000	458.000	440.000	421.000
Stock of enterprises (previous year)	–	_*	2.762.925	2.797.759	2.859.983	2.886.268
Labour force (previous year)	39.492.000	39.376.000	39.550.000	39.806.000	40.090.000	40.217.000
Population aged 15-64 (previous year)	55.550.000	55.452000	55.551.000	55.659.000	55.653.000	55.653.000

* Since 1996 the stock of VAT-registered enterprises is surveyed every year. Until 1994, data were compiled only every two years. Moreover, the VAT-threshold was raised as of 1996, so 1994-data (2.304.408) are not fully comparable with those for 1996 and the following years.

Source**:** Own compilation based on IfM Bonn data, STATISTISCHES BUNDESAMT (2001, p. 21) and OECD (2001, p. 7 and p. 13).

Finally, table 3 comprises a compilation of the German data which are necessary for calculating enterprise start-up rates in section 4. With respect to the ecological approach, it is necessary to put the number of enterprise start-ups into relation with the stock of (accordingly defined) enterprises in the previous year. However, although the start-up data (flow figures) originate from the trade registers kept by local authorities, there are no corresponding data available with regard to the total number of enterprises in the trade registers (stock figures). Therefore, alternatively, the start-up figures will have to be related to the

stock of enterprises registered for VAT.[20] By contrast, start-up rates according to the labour market approach are much easier to calculate by using the statistical data originating from OECD's standardised labour force statistics.

3.2 France

The French National Statistics Institute ("Institut National de la Statistique et des Etudes Economiques" (INSEE)) keeps the enterprise register SIRENE which lists all French enterprises and establishments. Data on enterprise start-ups – originating from SIRENE – are processed further and published by APCE, the Agency for the creation of enterprises ("Agence Pour la Création d'Entreprises") (cp. AGENCE POUR LA CRÉATION D'ENTREPRISES (APCE) 2002).

A speciality of the French enterprise registration system relates to the fact that every sole proprietor (physical person) and every incorporated company (juridical person) are given a special enterprise identification number. Physical persons keep this identification number for their entire life. Only the creation of the *first* active enterprise is recorded as an enterprise start-up because this event triggers the assignment of the identification number (cp. INSTITUT NATIONAL DE LA STATISTIQUE ET DES ETUDES ECONOMIQUES (INSEE) 2002). In case the enterprise owner sets up any additional firms afterwards, these incidents will not be covered by the start-up statistics. Thus, the official data on enterprise start-ups tend to *understate* the actual extent of start-up activities in France.

Start-up statistics as published by APCE differentiate between three different types of new firms: entirely new firms ("créations ex-nihilo"), re-launches ("réactivations") and take-overs ("reprises").[21] "Créations ex-nihilo" represent entirely new businesses which are registered for the first time and which had *not* been operating before. Re-launches, by contrast, mainly occur when an enterprise owner had officially terminated business activities – an incident recorded in the statistics as closure ("cessation") – and then starts again afterwards. This new start can take place in the form of the creation of an entirely new business or by way of take-over of an already established enterprise. Eventually, a "reprise" is given when an established enterprise is taken over by a new owner, thus, representing the case of a *derived*-independent entry.

In order to specify the total number of original-independent entries, one has to consider all "créations ex-nihilo" and the share of "réactivations" which result in

the creation of entirely new businesses. According to APCE, approx. 80 % of re-launches enter the market by way of an entirely new firm.[22] Thus, start-up figures, as presented in table 4, are calculated as the sum of "créations ex-nihilo" plus 80 % of "réactivations".[23]

Table 4: Compilation of start-up rate related data, France, 1995-2000

	1995	1996	1997	1998	1999	2000
Enterprise start-ups	226.431	217.711	213.132	210.811	214.542	219.687
Stock of enterprises (previous year)	2.330.000	2.370.000	2.390.000	2.390.000	2.400.000	–
Labour force (previous year)	25.344.000	25.350.000	25.609.000	25.768.000	26.016.000	26.293.000
Population aged 15-64 (previous year)	37.695.000	37.784.000	37.884.000	37.988.000	38.085.000	38.194.000

Source: Own compilation based on AGENCE POUR LA CRÉATION D'ENTREPRISES (APCE) (2002, p. 4); INSTITUT NATIONAL DE LA STATISTIQUE ET DES ETUDES ECONOMIQUES (INSEE) (2001, p. 135) and OECD (2001, p. 7 and p. 13).

3.3 United Kingdom

For the United Kingdom two different statistical sources on enterprise start-ups will be presented. While the official VAT-registration data cover only those – relatively larger scaled – enterprise births exceeding the VAT turnover-threshold,[24] the second data source also includes the large number of small scaled enterprise start-ups and, thus, corresponds more closely with the German start-up statistics.

3.3.1 United Kingdom: VAT Registrations

The VAT-registration data produced by HM Customs and Excise (HMCE) represent the official data source on the pattern of enterprise start-ups across the United Kingdom (UK) (cp. SMALL BUSINESS SERVICE 2001, p. 1). They are an indicator of the number of enterprise start-ups and of the health of the business population. As such they are widely used in regional and economic planning as well as for empirical studies investigating enterprise start-up activities in the UK.

VAT registration is compulsory for all enterprises with an annual turnover above the VAT-threshold, except for those in a small number of exempt economic sectors such as health and education.[25] Since April 1st, 2001 the VAT threshold is set at an annual turnover of 54.000 £ Pound Sterling (approx. 88.200 €).[26]

Businesses have to register with HM Customs and Excise, i.e. the Government department responsible among other things for collecting revenues from Value Added Tax. HMCE, in turn, delivers data to the Office for National Statistics (ONS) which uses them as an important input for the Inter-Departmental Business Register (IDBR). The IDBR contains records of all businesses registered for VAT as well as information on employers who operate PAYE Income Tax schemes.[27]

So, in the United Kingdom, flow and stock figures are both based upon the same underlying definitions and methodologies (e.g. with respect to sectoral coverage). The VAT registration data have the further advantage that they are readily available and provide comprehensive regional and industrial coverage of enterprise start-ups.

Table 5 provides an overview of start-up rate related data for the United Kingdom. Enterprise data refer to VAT registrations and to the stock of VAT registered businesses.

Table 5: Compilation of start-up rate related data, United Kingdom, 1995-2000 (data are based on VAT-registrations)

	1995	1996	1997	1998	1999	2000
Enterprise start-ups	163.960	168.200	182.570	186.250	178.460	183.325
Stock of enterprises (previous year)	1.629.235	1.609.335	1.600.065	1.603.200	1.621.315	1.651.635
Labour force (previous year)	28.455.000	28.486.000	28.653.000	28.852.000	28.892.000	29.194.000
Population aged 15-64 (previous year)	37.851.000	38.019.000	38.193.000	38.362.000	38.565.000	38.821.000

Source: Own compilation based on SMALL BUSINESS SERVICE (2001a, p. 12 and p. 14) and OECD (2001, p. 7 and p. 13).

However, when interpreting these data one should bear in mind that they are exclusively related to larger scaled enterprises and start-ups. This is due to the requirement for firms to register for VAT only when they reach the respective (relatively high)[28] turnover threshold. This implies that – seen from a quantitative view – a substantial part of start-up and established business activities is not covered at all by the official statistics. Indeed, the Small Business Service estimates that in total there were approx. 3,7 million active businesses in the UK in the year 2000.[29] However, the IBRD accounts only for 1,7 million firms registered for VAT.

Hence, from a purely quantitative view the VAT statistics do record less than half (46 %) of all economic activity (in terms of number of active enterprises). Interestingly, the 2 million non-VAT-registered businesses which do *not* enter the IBRD, mainly sole proprietors and partnerships, are estimated to generate only approx. 1 % of the total turnover (excluding VAT) of the UK economy and represent only about 7 % of total employment.[30] The impression that a major part of enterprise activities can be classified as rather small scale business is also underlined by the fact that out of the entirety of 3,7 million active firms only 1,1 million actually employ staff. The remaining 2,6 million businesses are sole proprietorships and partnerships comprising only the self-employed owner-manager(s) and companies employing only an employee-director (cp. SMALL BUSINESS SERVICE 2001b, p. 2).

Thus, it becomes evident that a large number of active businesses contribute rather little in terms of value added to the overall economy. There is good reason to assume that this holds true also for a major part of enterprise start-ups. Hence, new firms do also differ quite strongly in their contribution to the overall economy.

Furthermore, the official VAT-based statistics on enterprise start-ups features two more special characteristics which should be kept in mind when using the data for economic analyses. In fact, VAT-registration figures do not only include entirely new firms (in the sense of original-independent entries) but also a considerable share of incidents such as registrations due to business reorganisation, change of ownership, take-over of existing firms etc. These so-called "purchase entries", i.e. purchases of existing businesses, are estimated to come up for more than one quarter (27 %) of all VAT-registrations (cp. JOHNSON/CONWAY 1997, p. 405 and STOREY 1991, p. 169). Their inclusion in the official start-up data might be of some concern because purchase entries (i.e. derived entries) can be assumed to be subject to rather different economic determinants and to have different economic impacts. Most important, other things being equal, purchase entries do not increase the stock of active enterprises (as entirely new firms do). Thus, their inclusion in the start-up data distorts entry rates which are meant to measure the significance of newly created enterprises.

The second issue regards the relationship between the date of the business start and the date of VAT-registration. Indeed, a considerable number of businesses newly registered for VAT have already been operating in the market for

quite some time. Thus, in some cases the official VAT-recording of an enterprise birth does not necessarily coincide with the start of business activities but might occur much later.[31] The problem is aggravated by the relatively high turnover threshold. Many newly created enterprises stay in the market without ever exceeding the threshold or when they eventually do, so much time has passed that one cannot really consider this as being the date of enterprise birth. In these cases, the date of VAT registration appears to be rather of administrative or legal importance but less so of economic significance for start-up statistics.

In order to paint a more comprehensive picture of start-up activities in the United Kingdom, the following section presents the results of a second database which includes the large number of very small new firms. These figures, however, refer only to England and Wales. Yet, this shortcoming is not of major concern for obtaining a first impression of the *entirety* of start-up activities as the large majority of UK businesses actually operate in these two regions.

Table 6: Regional breakdown of the business population in the United Kingdom, 2000

	VAT-Registrations		Stock of VAT-registered enterprises		Total business population (est. 1999)	
	abs.	in %	abs.	in %	abs.	in %
England	162.300	88,5	1.410.400	85,1	3.214.755	87,4
Wales	6.200	3,4	74.500	4,5	144.135	3,9
Scotland	11.400	6,2	118.700	7,2	233.430	6,3
Northern Ireland	3.500	1,9	54.600	3,3	84.620	2,3
United Kingdom	183.300	100,0	1.658.100	100,0	3.676.940	100,0

Source: Own calculations based on SMALL BUSINESS SERVICE (2001a, p. 9); SMALL BUSINESS SERVICE (2001, p. 4) and SMALL BUSINESS SERVICE (2000, p. 66).

As shown by table 6, approx. 90 % of business activity in the United Kingdom takes place in England and Wales.[32] This refers to both, to VAT registered (start-up) businesses as well as to the entirety of the business population.[33]

3.3.2 United Kingdom: Barclays Small Business Survey

Barclays Small Business Surveys provide quarterly estimates of the number of (mainstream) enterprise start-ups and closures, along with the corresponding stock of firms in England and Wales.[34] All sizes of firms are included, although the vast majority are small (i.e. having an annual turnover of less than

1 million £ or 1,63 million €). Mainstream firms are full-time sole occupation businesses (including e.g. partnerships and limited companies) set up with the objective of making a profit. The estimates are generated by combining actual Barclays Bank client data on enterprise start-ups with estimates of their market share in the two regions.

Table 7: Enterprise start-ups and stock of enterprises, England and Wales, 1995-2000 (data are based on estimates from Barclays Small Business Survey)

	1995	1996	1997	1998	1999	2000
Enterprise start-ups	471.406	477.629	476.689	454.627	437.683	464.904
Stock of enterprises (previous year)	2.670.441*	2.680.924	2.621.702	2.655.889	2.721.198	2.763.165
						© IfM Bonn

* The figure refers to the *first* quarter of 1995.

Source**:** Own compilation based on BARCLAYS (2000, p. 4) and telephone information by BARCLAYS BANK (with respect to 2000 data).

These projection-based data provide a more comprehensive picture of the entirety of start-up activities in England and Wales, as a major part of non-VAT-registered new firms is also statistically recorded (cp. table 7). In so far, they correspond more closely with the German data which also include the large segment of small scale business start-ups.

Eventually, the above presented data for England and Wales are projected on UK-level. Assuming that England and Wales come up not only for 91,3 % of the total business population (cp. table 6) but also for 91,3 % of *all* start-ups in the UK, one has to multiply the data in table 7 with the factor 1,095 [=1 / ((3.214.755+144.135) / 3.676.940)]. Hence, the resulting data as shown in table 8 represent proxies for the United Kingdom as a whole.

Table 8: Compilation of start-up rate related data, United Kingdom, 1995-2000 (data are based on estimates from Barclays Small Business Survey)

	1995	1996	1997	1998	1999	2000
Enterprise start-ups	516.043	522.855	521.826	497.675	479.127	508.925
Stock of enterprises (previous year)	2.923.302	2.934.778	2.869.948	2.907.373	2.978.866	3.024.806
Labour force (previous year)	28.455.000	28.486.000	28.653.000	28.852.000	28.892.000	29.194.000
Population aged 15-64 (previous year)	37.851.000	38.019.000	38.193.000	38.362.000	38.565.000	38.821.000

Source: Own calculations based on BARCLAYS (2000, p. 4), telephone information by BARCLAYS BANK (2000 data) and OECD (2001, p. 7 and p. 13).

3.4 Italy

Data on Italian enterprise start-ups as well as on the stock of enterprises stem from the official national business register "Movimprese". All entities carrying out economic activities (including agricultural firms) are legally required to register with the competent local Chambers of Commerce. Data from the various Chambers represent the statistical input for the business register Movimprese. "InfoCamere", a special division of "Unioncamere", the federation of Italian Chambers of Commerce, is in charge of compiling, processing and analysing quarterly information on registrations ("iscrizioni"), de-registrations ("cessazioni") and the stock of registered enterprises.[35]

The data are deeply differentiated by economic sector, region and legal form. Furthermore, they include not only incorporated companies such as limited liability companies but also the large number of small scaled sole proprietorships. In total, there are two separate statistics, one for the agricultural sector and the (main) one for the remaining (i.e. non-primary) economic sectors.

Established in 1982, Movimprese represents the most comprehensive and frequently updated *official* source on business demographics in Italy (cp. UNIONCAMERE 2002, p.1 and UNIONCAMERE 2000, p.1). Table 9 presents the Italian enterprise start-up rate related data for the period 1995 to 2000. The enterprise data do *not* include the agricultural sector.

Table 9: Compilation of start-up rate related data, Italy, 1995-2000

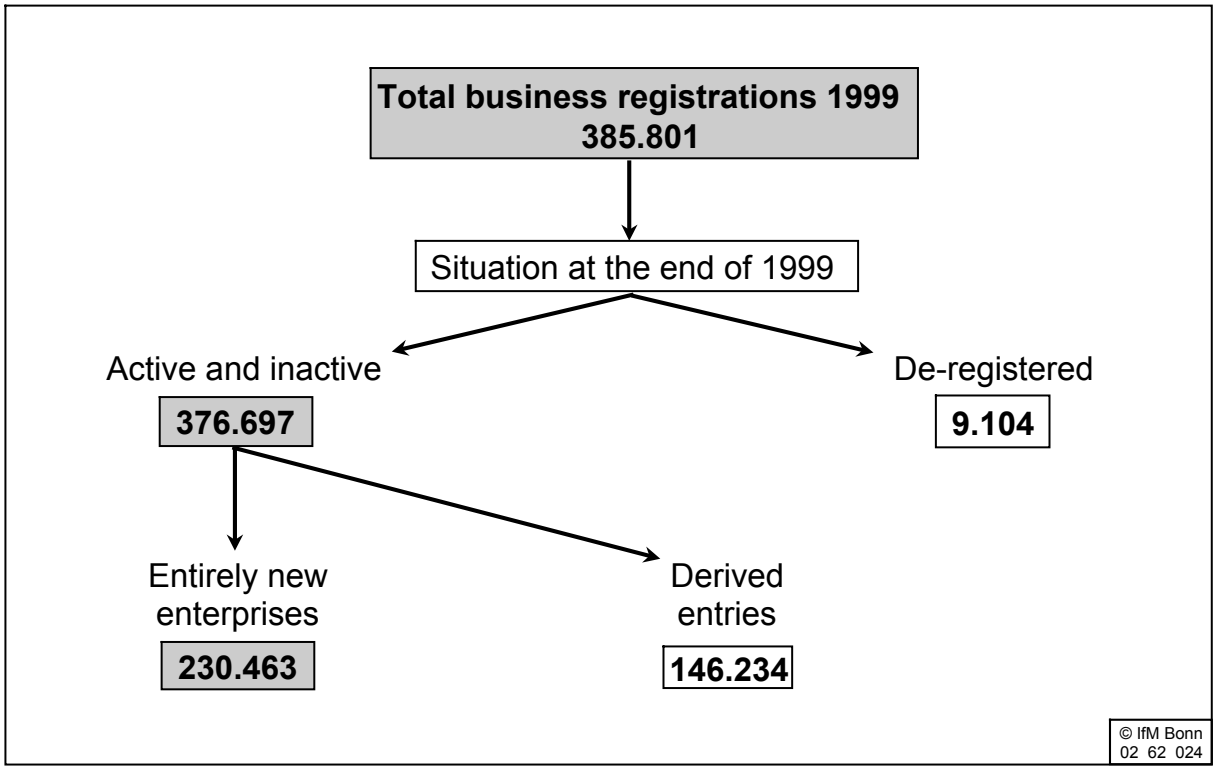
	1995	1996	1997	1998	1999	2000
Enterprise start-ups	306.442	338.902	323.308	319.180	340.977	366.340
Stock of enterprises (previous year)	4.185.747	4.242.968	4.322.686	4.355.870	4.424.058	4.514.660
Labour force (previous year)	22.880.000	22.871.000	22.973.000	23.101.000	23.363.000	23.533.000
Population aged 15-64 (previous year)	38.893.000	38.910.000	38.870.000	38.867.000	38.859.000	38.805.000

Source: Own compilation based on UNIONCAMERE (2002a, p. 1) and OECD (2001, p. 7 and p. 13).

However, as recognised by Unioncamere and other statistical experts (cp. BRANDANI 1998), the above presented data *overstate* the stock of (active) enterprises and the actual extent of start-up activities in Italy. Hence, Unioncamere has initiated some research aimed at processing Movimprese's data further in order to render them more valuable for economic analyses of the Italian business population.

Indeed, on average only approx. 82 % of the firms making up the stock of registered enterprises can be classified as active enterprises ("imprese attive"), i.e. as firms operating on the market. The remaining 18 % are either inactive, suspended, in liquidation or in bankruptcy procedures (cp. INFOCAMERE 2000, p. 1). Furthermore, Unioncamere has recently begun to analyse the composition of business registrations ("iscizioni") (cp. UNIONCAMERE 2001, p. 1). Thus, for the years 1998 and 1999 there are already more detailed data available which differentiate between entirely new firms ("nuove imprese effettive") and so-called derived entries from (formerly) existing enterprises ("imprese derivanti") (cp. INFOCAMERE 2000, p. 4 f.). Figure 1 illustrates for the year 1999, how the total number of registrations (*including* agriculture) can be subdivided into its various components. Due to the inclusion of agriculture, the total number of business registrations (385.801) is higher than the one shown in table 9 (340.977) which excludes new agricultural firms.

Figure 1: Composition of business registrations, Italy, 1999



Source: Translated from UNIONCAMERE (2000, p. 4).

Interestingly, out of the original 385.801 registrations recorded during the course of the year 1999, only 230.463 – i.e. 59,7 % – represent original-independent enterprise start-ups. The remaining businesses had already been de-registered until the end of the year (2,4 %) or constitute derived entries (37,9 %).[36] Thus, only approx. 60 % of Movimprese's above cited entry figures do actually represent enterprise start-ups in the sense of entirely new (original-independent) firms.

Another cause for inconsistencies can be seen in different practices of the various Chambers of Commerce with regard to maintaining and updating their local business registers. For instance, some Chambers might be more engaged than others in clearing their registers from inactive enterprises and thus, might generate data which follow the economic reality more closely (Cp. INFOCAMERE 2000, p. 6 and BRANDANI 1998, p. 2). Eventually, some Chambers of Commerce might show more determination than others in tracking down unregistered businesses which illegally operate in the shadow economy and, thus, distort the official enterprise statistics (cp. INFOCAMERE 1999, p. 6 f.).

The following data for 1998 and 1999, as shown in table 10, reflect the number of *active* incumbent enterprises in the previous year as well as the number of *entirely new* firms in the current year (in both cases *excluding* the agricultural sector). Therefore, one can assume that – compared to Movimprese's original, unprocessed data – these figures provide a more realistic picture of the start-up activities in Italy.

Table 10: Compilation of start-up rate related data, Italy, 1998-1999 (data are based on active enterprises and entirely new firms; excluding agriculture)

	1998	**1999**
Enterprise start-ups	184.034	194.798
Stock of enterprises (previous year)	3.598.973	3.645.903

Source**:** Own compilation based on UNIONCAMERE (2000, p. 6), UNIONCAMERE (1999, p. 8), INFOCAMERE (2000, p. 1) and OECD (2001, p. 7 and p. 13).

3.5 Spain

The Spanish National Statistics Institute ("Instituto Nacional de Estadística") uses enterprise data from various sources – mainly from the Tax and Social Security Administration – in order to generate the Central Enterprise Register ("Directorio Central de Empresas" (DIRCE)). DIRCE is a directory of all Spanish enterprises and is used as basis for compiling annual information on start-ups ("altas"), closures ("bajas") and established active enterprises ("permanencias"),[37] broken down by economic sector, legal form, employment size and region.[38]

DIRCE has two valuable advantages as far as its use for business demography related analyses is concerned. First, it includes data on Spanish enterprises operating in *all* economic sectors with the only exception of agriculture, public administration and social security. Secondly, DIRCE covers all enterprises regardless of size. Thus, the large number of very small enterprises without employees is also covered (cp. CÁMARAS DE COMERCIO, INDUSTRIA Y NAVEGACIÓN DE ESPAÑA Y FUNDACIÓN (INCYDE) 2001, p. 43).

The number of enterprise start-ups as shown by DIRCE consists of two sub-populations: so-called pure start-ups ("altas puras") on one side and reactivated businesses ("reactivaciones") on the other. Pure start-ups represent entirely new firms which enter the market for the first time in a given year and had

not been operating before. By contrast, reactivated firms also start trading in a given year but had been trading before. They terminated their business activities only in the previous year to start again in the current year (cp. INSTITUTO NACIONAL DE ESTADÍSTICA 2002, p. 10 f. and p. 15 f.).

For example in the year 2000, approx. 11,0 % (i.e. 37.848 firms) of all start-ups represented reactivated firms. These are mainly sole proprietorships (85,2 %), which do not employ any staff (78,4 %) and operate predominantly in the service sector (51,0 %), especially in the hotel, restaurant and catering sector (cp. INSTITUTO NACIONAL DE ESTADÍSTICA 2002, p. 12 and p. 16.). Reactivations occur because of a multitude of different reasons such as seasonal business activities, temporary suspension of business activities due to owner's illness or accident, temporary closedown of business due to external reasons etc.

The enterprise start-up data, as shown in table 11, are based on the number of start-ups *including* reactivated enterprises.

Table 11: Compilation of start-up rate related data, Spain, 1995-2000

	1995	1996	1997	1998	1999	2000
Enterprise start-ups	–	364.934	290.415	288.164	339.162	344.432
Stock of enterprises (previous year)	–	–	2.384.711	2.438.830	2.474.690	2.518.801
Labour force (previous year)	15.701.000	15.849.000	16.159.000	16.333.000	16.441.000	16.598.000
Population aged 15-64 (previous year)	26.585.000	26.703.000	26.788.000	26.844.000	26.879.000	26.893.000

Source: Own compilation based on information provided extra by Mr. Juan José de Lucio from CÁMARAS DE COMERCIO, INDUSTRIA Y NAVEGACIÓN DE ESPAÑA and OECD (2001, p. 7 and p. 13).

3.6 USA

Like the United Kingdom, the United States has no formal annual survey of the *entirety* of enterprise start-up activities.[39] Therefore, two different sets of statistical data will be presented for the US as well. The first one relates to new businesses which employ at least one employee liable to unemployment insurance contributions (employer firms), while the second one *additionally* includes some estimates of the number of small scale start-ups.

3.6.1 USA: New Employer Firms

In the United States, firms employing at least one employee liable to unemployment insurance contributions (employer firms) are required to file quarterly reports with the U.S. Department of Labor's Employment and Training Administration (ETA). Based on ETA's data, the U.S. Small Business Administration's (SBA) Office of Advocacy compiles and publishes statistical data on new employer firms in its annual publication "Small Business Economic Indicators". Thereby, a new employer firm is broadly defined as a firm which *begins* to employ people within a state. Once again, this incidence does not necessarily coincide with the start of business activities. Furthermore, SBA's data which are ultimately based on state unemployment insurance files, seem to suffer from an ill-defined unit of analysis.[40] Moreover, it can take up to two years for a terminated firm to be removed from the ETA's list of filings. Thus, the data on the total number of firms may be temporarily overstated (cp. U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY 2000, p. 8).

Table 12: Compilation of start-up rate related data, USA, 1995-2000 (data refer to employer firms only)

	1995	1996	1997	1998	1999	2000
Enterprise start-ups	594.369	597.792	590.644	589.982	587.700	612.400
Stock of enterprises (previous year)	5.276.964	5.369.068	5.478.047	5.541.918	5.579.177	5.688.200
Labour force (previous year)	132.474.000	133.646.000	135.231.000	137.546.000	138.902.000	140.571.000
Population aged 15-64 (previous year)	170.258.000	171.982.000	173.810.000	175.913.000	177.964.000	179.968.000

Source: Own compilation based on U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY (2001, p. A-4) and OECD (2001, p. 7 and p. 13).

The Office of Advocacy's data on new employer firms – as depicted in table 12 – represent the most official data source on enterprise start-ups in the United States. Nevertheless, they significantly *understate* the actual extent of start-up activities as they do not include the considerable number of new ventures undertaken by self-employed business owners who generally start without any employees. Thus, by way of *estimation*, the following section 3.6.2 aims at providing a more comprehensive impression of US start-up activities including new ventures by self-employed business owners.

3.6.2 USA: New Employer Firms and New Self-employed

According to the SBA's Office of Advocacy, the total number of enterprises in the United States generally contains two components (cp. U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY 2001a, p. 7): employer firms *and* self-employed individuals.[41] As described above, employer firms are those enterprises employing at least one employee liable to unemployment insurance contributions. Data on self-employed businesses include *un*incorporated[42] individuals whose *primary* occupation is self-employment,[43] few of whom have employees.[44] This excludes self-employment as a second job.[45] Discrepancies may arise, however, since figures for employer firms and self-employment sometimes overlap. Some self-employed businesses have employees and many self-employed individuals have more than one firm.[46]

The *total* number of US businesses has increased by 3,6 % during the 1990's (cp. table 13). Employer firms have contributed most to this increase by growing 14,6 % in the period from 1990 to 2000. By contrast, growth of self-employed businesses has been negative for the period (-1,9 %), despite annual fluctuations. Indeed, the stock of self-employed businesses seems to be more volatile than employer firms, possibly indicating a larger proportion entering and exiting each year.

Table 13: Stock of employer firms and self-employed businesses, USA, 1990-2000

Year	Employer firms	Self-employed	Total business population
1990	5.073.795	10.097.000	15.170.795
1991	5.051.025	10.274.000	15.325.025
1992	5.095.356	9.960.000	15.055.356
1993	5.193.642	10.280.000	15.473.642
1994	5.276.964	10.648.000	15.924.964
1995	5.369.068	10.482.000	15.851.068
1996	5.478.047	10.490.000	15.968.047
1997	5.541.918	10.513.000	16.054.918
1998	5.579.177	10.303.000	15.882.177
1999	5.688.200	10.087.000	15.775.200
2000	5.812.100	9.907.000	15.719.100

Source: Own compilation based on U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY (2001, p. A-4).

Interestingly, rather than stimulating self-employment, the economic boom of the mid-to-late 1990's has had a negative effect on overall self-employment. A tight labour market offering many attractive opportunities in wage and salary positions has kept many employees (i.e. potential self-employed business owners) from starting-up.[47] Likewise, some (struggling) self-employed business owners seem to have closed down their firms and entered dependent employment because the opportunity cost of remaining self-employed had increased (due to good job opportunities elsewhere).

These figures suggest that favourable overall business conditions (in terms of GDP and employment growth) seem to encourage relatively larger-sized start-ups (i.e. employer firms), whereas small scale projects (i.e. self-employed businesses) appear to be negatively affected.

The above presented annual figures on the *total* business population are ultimately based on *net* changes in the stock of employer firms and the self-employed. However, such net changes are always the result of both, entries *and* exits of enterprises, i.e. *gross* changes. While there are data available on entries and exits of employer firms (cp. section 4.6.1), there is a lack of corresponding data on new and terminated self-employed ventures (cp. U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY 2001a, p. 11).

However, recent information from 3.000 household interviews indicates that self-employment volatility is about *twice* that of employer firms (cp. U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY 2000, p. 7 and DENNIS 1998). In order to produce some rough estimates for the *entirety* of US start-up activities, the following calculations assume for each year an *entry rate* for self-employed businesses which is *exactly double* the size of the corresponding rate for employer firms.

In contrast to the entry rate for self-employed businesses, the rate for new employer firms can be *exactly* specified by dividing the stock of employer firms in the previous year by the number of new employer firms in the current year. So, departing from the start-up rate for employer firms, the respective *rate* for self-employed businesses can be easily calculated by multiplying it with the factor 2. *Applying* this newly created rate to the stock of (primarily) self-employed in the previous year, generates an approximation for the number of people *entering* self-employment in a given year.[48]

Table 14: Compilation of start-up rate related data, USA, 1995-2000 (data refer to employer firms *and* self-employed businesses)

	1995	1996	1997	1998	1999	2000
Enterprise start-ups	2.993.037	2.931.924	2.852.711	2.828.370	2.758.297	2.784.363
Stock of enterprises (previous year)	15.924.964	15.851.068	15.968.047	16.054.918	15.882.177	15.775.200
Labour force (previous year)	132.474.000	133.646.000	135.231.000	137.546.000	138.902.000	140.571.000
Population aged 15-64 (previous year)	170.258.000	171.982.000	173.810.000	175.913.000	177.964.000	179.968.000

Source: Own calculations based on U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY (2001, p. A-4) and OECD (2001, p. 7 and p. 13).

Thus, the start-up figures for the United States, as shown in table 14, are based on accordingly produced estimates of the total number of enterprises (employer firms plus self-employed businesses) as well as of the total number of enterprise start-ups (new employer firms plus new self-employed businesses). These newly compiled data represent *proxies* for the *entirety* of US enterprise start-up activities and, thus, correspond more closely with the German data.

4. Preliminary Results from an Analysis of Enterprise Start-up Rates in the six OECD Countries

This section aims at providing some *preliminary* evidence on the development of enterprise start-up rates in the six OECD countries under consideration. It is important to exercise some *caution* in interpreting the results. This is mainly due to the *unstandardised* nature of both, the underlying national data bases and the definitions and methodologies applied for processing statistical data on start-ups and established enterprises.

The entry rates are calculated on the basis of the definitions presented in section 2. The background information on the national data sources (cp. section 3) is used in order to put the results into perspective and to ease their interpretation. With regard to the specific nature of the data, it is in general more reliable to compare *trends* across different countries over time, while comparisons of the *absolute* level of entry rates should be undertaken only with elevated caution.

4.1 Enterprise Start-up Rates According to the Ecological Approach

Comparing for each country the *first* available with the *last* available value shows that only Spain and Italy experience an *upward* trend with regard to the ecological entry rate. The remaining four countries all face *declining* trends whereby Germany features a relatively strong decrease in the number of start-ups per established enterprises (-1,8 percentage points). In the year 2000, the declining trend has *reversed* in France,[49] the United Kingdom and in the United States, however, not so in Germany where the entry rate continued to decrease (cp. table 15).

Table 15: Enterprise start-ups per established enterprises, 1995-2000 (in %)

	1995	1996	1997	1998	1999	2000
Germany	–	–	16,4	16,4	15,4	14,6
France	9,7	9,2	8,9	8,8	8,9	–
United Kingdom	17,7	17,8	18,2	17,1	16,1	16,8
Italy	7,3	8,0	7,5	7,3	7,7	8,1
Spain	–	–	12,2	11,8	13,7	13,7
United States	18,8	18,5	17,9	17,6	17,4	17,7

Source: Own calculations based on tables 3 (D), 4 (F), 8 (UK), 9 (I), 11 (E) and 14 (USA).

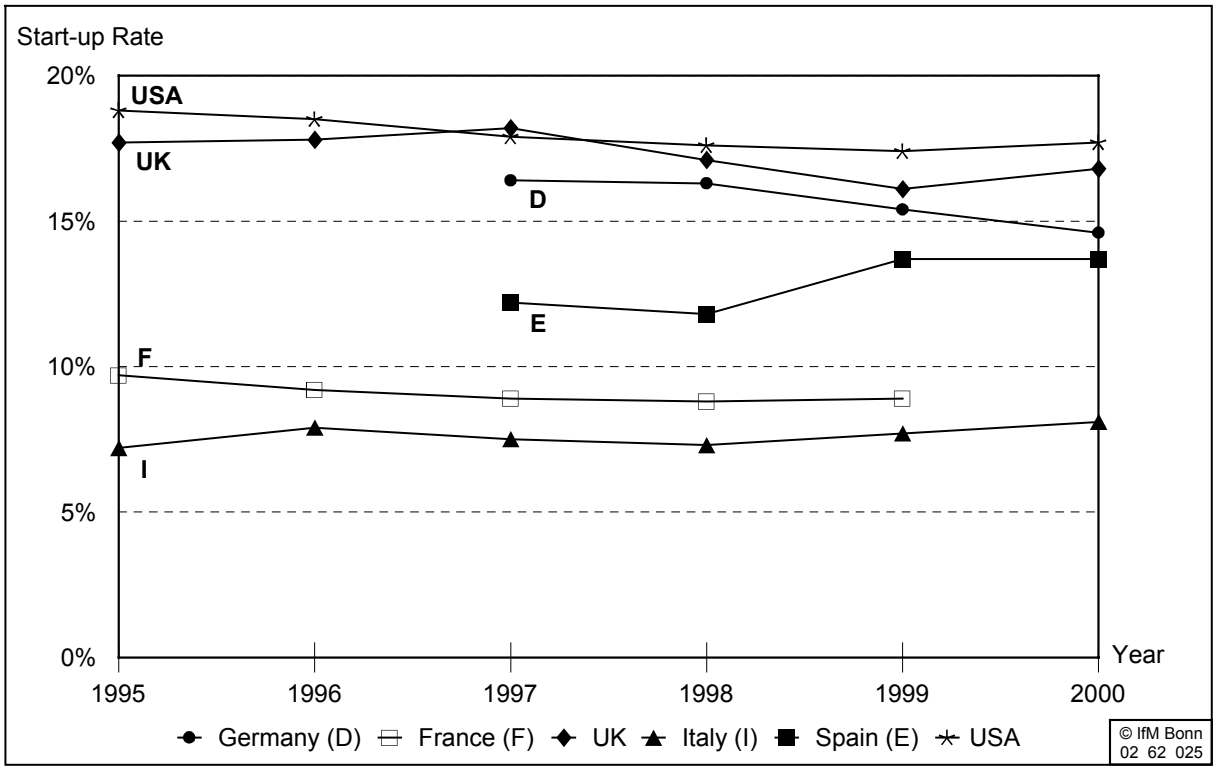
The declining trends in the US and in the UK can be analysed further by distinguishing between different types of enterprise start-ups. First of all, it is interesting to acknowledge that both countries show declining trends in start-up rates in the first place, although their economies experienced a strong economic boom in the mid-to-late 1990's. Interestingly, in both countries the number of relatively *larger* start-up projects has grown in spite of the *overall* downward trend. Indeed, the number of new US employer firms with at least one employee and the number of UK businesses newly registered for VAT have both *increased* in the period from 1995 to 2000 (cp. tables 5 and 12). Thus, the overall downward trend is mainly due to rather strongly decreasing numbers of *small scale* start-up projects (new self-employed businesses in the US and new non-VAT-registered businesses in the UK).[50] Obviously, a major part of *potential* micro-entrepreneurs has preferred well-paid dependent employment to starting-up on their own.

Hence, it seems to be important to recognise that absolute levels or trends of entry rates taken by themselves are very difficult to interpret. In particular, one cannot make a-priori evaluations of the kind that, for example, declining start-

up rates are always to be judged negatively or that increasing entry rates are always signs of a healthy economy. Thus, high start-up rates are not an economic good by themselves. Instead, given the vast heterogeneity of start-up ventures,[51] it appears to be advisable to interpret these figures rather cautiously and not out of context. The economic framework conditions such as employment and GDP growth (expectations) but also the extent of labour and product market regulation seem to play an important role in influencing the *absolute number* and *composition* of start-up projects.

With respect to the *absolute level* of the ecological start-up rates, the United States and the United Kingdom feature each year the highest share of new businesses relative to the stock of incumbent firms. Thus, these two economies are characterised by a constant high influx of new entrants to the markets. These results also hint at relatively low entry (and exit) barriers making it easy for new businesses to enter the market and try their fortunes. In case the start-up project does not turn out to be successful, business owners seem to be able to re-enter dependent employment quite easily.[52]

Figure 2: Enterprise start-ups per established enterprises, 1995-2000, (in %)



Source: Own calculations based on tables 3 (D), 4 (F), 8 (UK), 9 (I), 11 (E) and 14 (USA).

Germany also ranks among the countries with a relatively large ecological start-up rate, however, its third position is increasingly challenged by Spain.

France and Italy follow in fifth and sixth position whereby Italy's ranking needs some qualification. In fact, Italy's economy is marked by a relatively large number of *established* enterprises (cp. section 4.3). Other things being equal, this static size-distribution effect *deflates* current start-up rates (cp. section 2.1).

4.2 Enterprise Start-up Rates According to the Labour Market Approach

4.2.1 Labour Force Related Start-up Rates

Out of all six countries under investigation, Italy is the only one which shows a growing trend in its start-up rate calculated according to the labour market approach. With regard to the five remaining countries, the declining trend has reversed in France, in the United Kingdom and in Spain. By contrast, by the year 2000 there was yet no trend reversal in the United States and in Germany. The United States features a particularly strong decrease in its entry rate (-2,8 points) and furthermore it is the only country which experienced a *steady* decrease during the entire period from 1995 to 2000.

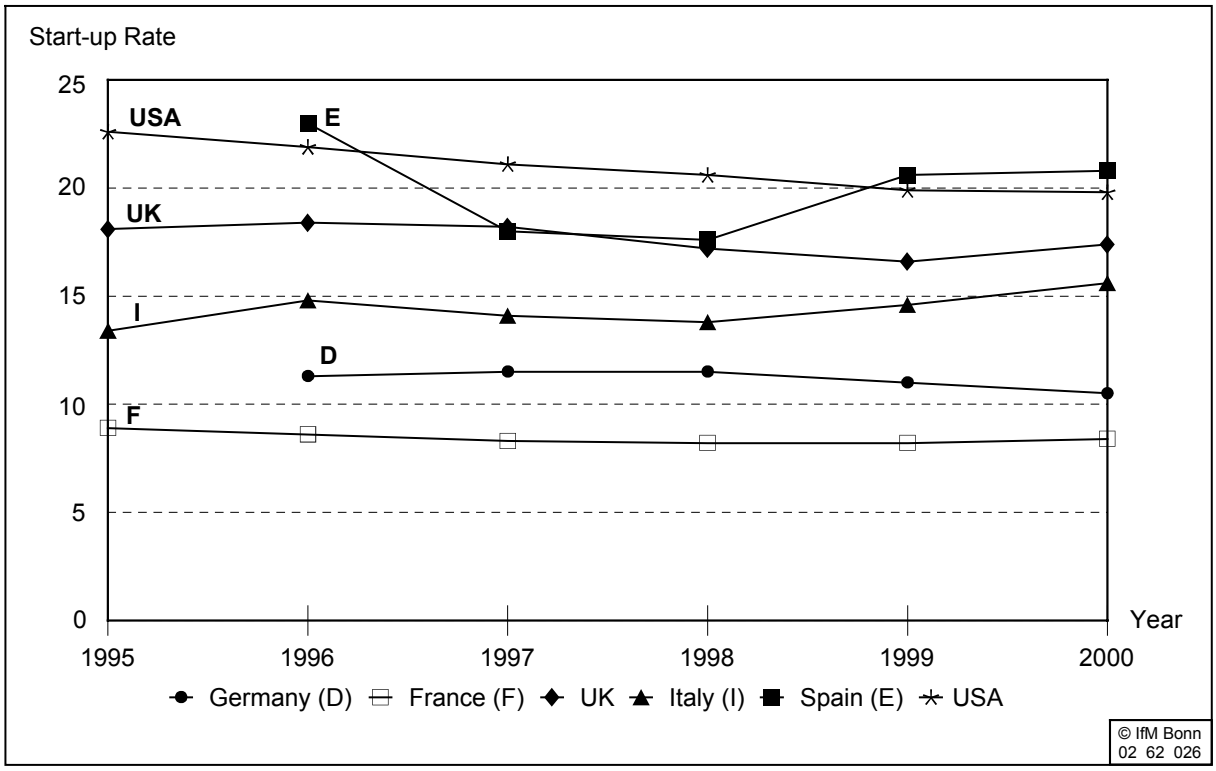
Table 16: Enterprise Start-ups per 1.000 Labour Force Members, 1995-2000 (absolute numbers)

	1995	1996	1997	1998	1999	2000
Germany	–	11,3	11,5	11,5	11,0	10,5
France	8,9	8,6	8,3	8,2	8,2	8,4
United Kingdom	18,1	18,4	18,2	17,2	16,6	17,4
Italy	13,4	14,8	14,1	13,8	14,6	15,6
Spain	–	23,0	18,0	17,6	20,6	20,8
United States	22,6	21,9	21,1	20,6	19,9	19,8

Source: Own calculations based on tables 3 (D), 4 (F), 8 (UK), 9 (I), 11 (E) and 14 (USA).

Seen from an *absolute* perspective, the United States, the United Kingdom and Spain are the three countries whose inhabitants are most ready to create new firms. Due to its growing entry rate, Italy is about to join this group of countries. Germany and France are at the bottom end as far the absolute level of start-up rates is concerned. Their entry rates amount to only about half of those of the US or Spain.

Figure 3: Enterprise Start-ups per 1.000 Labour Force Members, 1995-2000 (absolute numbers)



Source: Own calculations based on tables 3 (D), 4 (F), 8 (UK), 9 (I), 11 (E) and 14 (USA).

4.2.2 Start-up Rates Related to Population in Working Age

In contrast to the previous section, the start-up rate according to the labour market approach is calculated this time with the population in working age as denominator.

As far as trends over the period 1995-2000 are concerned, basically the same results come up as in section 4.2.1.

However, in two cases the absolute level of entry rates varies significantly when taking either the labour force or the population in working age as denominator. In fact, Spain (e.g. in 2000: -8,0 points) and Italy (-6,2) have both much *lower* entry rates when the number of inhabitants aged 15-64 is considered. This is due to their much lower labour force participation rates. In Spain (61,7 %) and Italy (60,6 %) a relatively small share of the population in working age is actually participating in the *official* labour market,[53] be it in employment or in registered unemployment. The other four countries, by contrast, feature much higher labour force participation rates, spanning from 68,8 % in France to 78,1 % in the United States.[54]

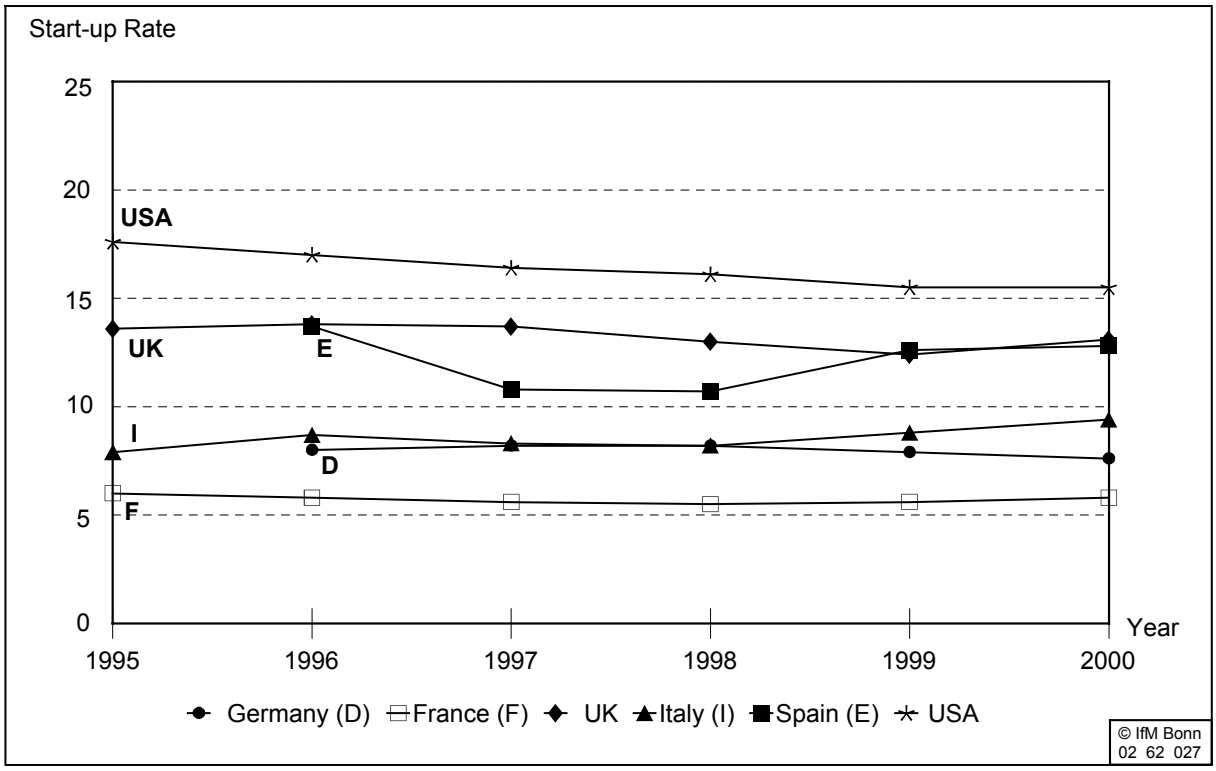
Table 17: Enterprise Start-ups per 1.000 Inhabitants in Working Age, 1995-2000 (absolute numbers)

	1995	1996	1997	1998	1999	2000
Germany	–	8,0	8,2	8,2	7,9	7,6
France	6,0	5,8	5,6	5,5	5,6	5,8
United Kingdom	13,6	13,8	13,7	13,0	12,4	13,1
Italy	7,9	8,7	8,3	8,2	8,8	9,4
Spain	–	13,7	10,8	10,7	12,6	12,8
United States	17,6	17,0	16,4	16,1	15,5	15,5

Source: Own calculations based on tables 3 (D), 4 (F), 8 (UK), 9 (I), 11 (E) and 14 (USA).

These results make obvious that is does make a difference whether one uses the labour force or the population in working age as denominator for start-up rates according to the labour market approach.

Figure 4: Enterprise Start-ups per 1.000 Inhabitants in Working Age, 1995-2000 (absolute numbers)



Source: Own calculations based on tables 3 (D), 4 (F), 8 (UK), 9 (I), 11 (E) and 14 (USA).

4.3 Complementary Analysis of the Rate of Established Enterprises per Population in Working Age

Section 4.2 focused on *annual* start-up data standardised by different stock figures. In order to supplement these analyses, an additional analysis is carried out which takes the *result* of all *past* start-up activities and enterprise closures into account. Therefore, an additional indicator is introduced.

This indicator places the number of *established* enterprises into relation with the size of population in working age (15-64). In principle, the indicator provides some preliminary evidence on the size structure of an economy. Higher values (i.e. more enterprises per 1.000 inhabitants in working age) indicate that an economy is marked by a relatively large number of (smaller-sized) firms. Lower values, by contrast, show that an economy is characterised by a *relatively* small *overall* number of businesses (which, however, tend to be larger scaled).

In general, a *growing* number of established enterprises per 1.000 inhabitants in working age can be interpreted as an increase in entrepreneurial activities in a country.[55] The figures, as presented in table 18 and depicted in figure 5, show that apart from the United States all other countries feature an increasing rate (that is to say, when comparing the *first* available rate with the *last* one). In Germany, Italy and Spain the rate increases steadily, while France and the United Kingdom experience an interim setback.

Table 18: Established Enterprises per 1.000 Inhabitants in Working Age, 1994-1999 (absolute numbers)

	1994	1995	1996	1997	1998	1999
Germany	–	–	49,7	50,3	51,4	51,9
France	61,8	62,7	63,1	62,9	63,0	–
United Kingdom	77,2	77,2	75,1	75,8	77,2	77,9
Italy	107,6	109,0	111,2	112,1	113,8	116,3
Spain	–	–	89,0	90,9	92,1	93,7
United States	93,5	92,2	91,9	91,3	89,2	87,7

Source: Own calculations based on tables 3 (D), 4 (F), 8 (UK), 9 (I), 11 (E) and 14 (USA).

Interestingly, in the United States the rate *decreases* steadily from 93,5 in 1994 to 87,7 in 1999. This development is partly due to the strong increase in the size of population in working age from 170,3 million in 1994 to 180,0 million in

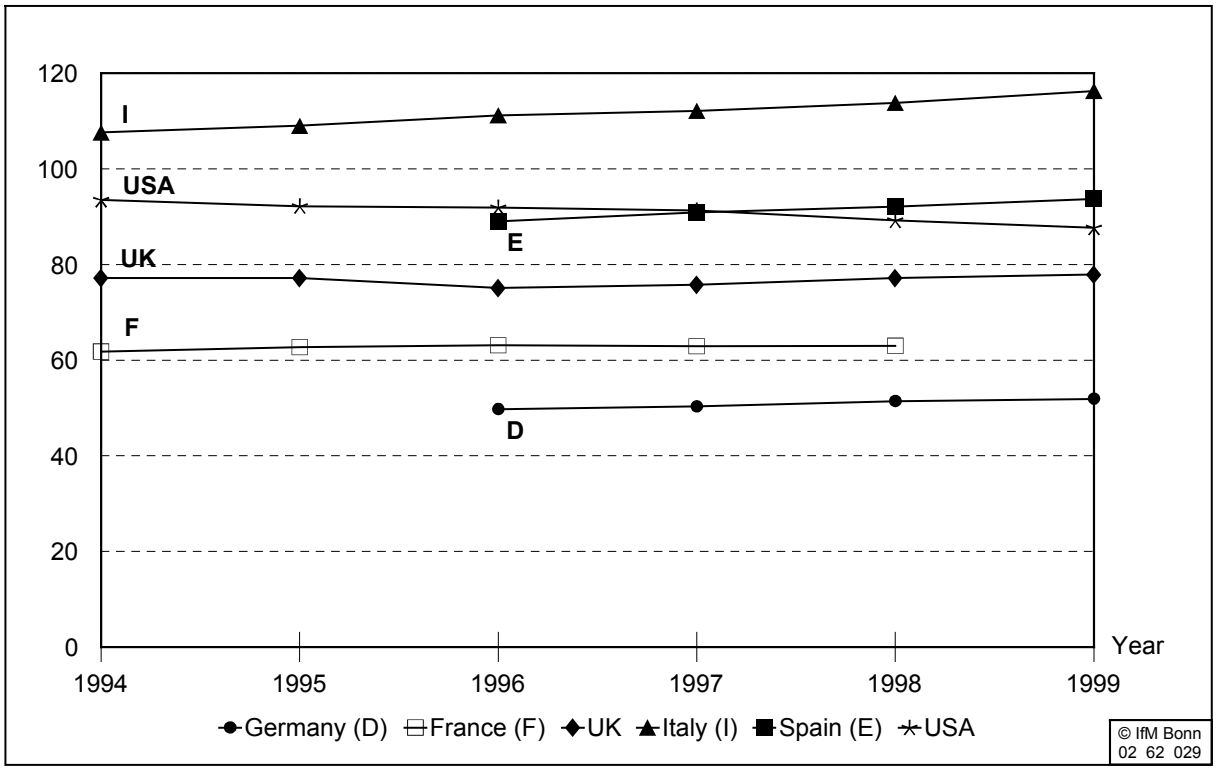
1999 (cp. table 12). Another factor influencing this result is the decline in the *overall* number of enterprises from 15,924 million (1994) to 15,775 million (1999). However, as already explained in section 4.6, the decreasing stock of enterprises is entirely due to a decline in the number of self-employed businesses from 10,6 million to 10,1 million.[56] By contrast, the number of (larger-scaled) employer firms has grown steadily over the period under consideration (from 5,2 million to 5,7 million).

Thus, although the United States undoubtedly enjoyed a strong economic boom in the mid-to-late 1990's, its *overall* rate of established businesses per population in working age declined. Hence, it is advisable to use some caution when interpreting this rate as an indicator of the level for entrepreneurship in a country. Indeed, it seems to be of some importance to distinguish between different types of businesses, e.g. between employer firms and self-employed businesses. While the former tend to benefit from favourable overall business conditions, the latter react in a more unpredictable way. In particular, a considerable number of self-employed business owners seem to take advantage of attractive opportunities in dependent employment and close down their business.

To conclude, the US figures once again highlight the necessity to keep in mind that the business population (in the same way as start-ups) is composed of a large variety of *different types* of firms which can be assumed to react in different ways to given economic framework conditions.

While it is quite meaningful to compare *trends* over time, it is rather difficult to compare the *absolute* level of this rate across countries. These difficulties mainly result from the differences in the underlying data sources. Considering these qualifications, one can detect that the two Mediterranean countries Italy and Spain are characterised by a particularly high number of established enterprises per 1.000 inhabitants in working age. They are followed by the two Anglo-Saxon countries, the United States and the United Kingdom. Eventually, France and – still with some distance – Germany show the smallest rates of the six OECD countries.

Figure 5: Established Enterprises per 1.000 Inhabitants in Working Age, 1994-1999 (absolute numbers)



Source: Own calculations based on tables 3 (D), 4 (F), 8 (UK), 9 (I), 11 (E) and 14 (USA).

The low German rate can be partly explained by the fact that – due to lack of other, more comprehensive data – the number of established enterprises includes only those firms which are registered for VAT. Therefore, all enterprises which do not exceed the (annual) turnover threshold of 16.617 € are not covered.

5. Summary

The discussion of different methods for measuring enterprise start-up rates showed that static size-distribution effects influence the results obtained from the ecological approach. For example, countries that have generated relatively high numbers of new firms in the past, tend to have artificially deflated *current* ecological start-up rates. Indeed, the empirical comparison of start-up rates has confirmed this theoretical conclusion for the case of Italy. But also the labour market approach is not fully independent of the underlying size structure of an economy, as employees in small businesses tend to have higher propensities to become self-employed. Thus, the two approaches do not exclusively measure the *current* start-up performance of countries but are also to some degree influenced by start-up activities which have taken place in the *past*.

Furthermore, the absolute level of entry rates according to the labour market approach is distorted by different labour force participation rates across countries. For example, the ranking of Italy and Spain, both marked by relatively low labour force participation rates, is much more favourable when applying the labour force as scaling variable instead of the population in working age.

Regarding the question of an optimal enterprise start-up rate, recent research has provided some evidence that one cannot simply assume a linear relation between entry rate on one side and economic well-being of an economy on the other. Thus, high start-up rates are not always automatically associated with a superior performance of an economy but can have a negative impact on growth due to suboptimal enterprise sizes.

Some initial theoretical considerations and the detailed presentation of the various national data sources on start-up figures in the analysed OECD countries highlighted difficulties and challenges related to the international comparison of start-up rates. In principle, comparisons across countries can produce reliable, meaningful results only if all analysed countries apply the same definitions and methodologies for processing the statistical data on start-ups and established enterprises. Moreover, the underlying data sources would have to be designed in the same way in each of the countries. However, these theoretical preconditions are currently not being met. Therefore, any analysis of unstandardised start-up rates can produce only preliminary results which have to be interpreted carefully. This is especially true for comparisons of *absolute* levels of start-up rates.

The subsequent analysis of enterprise start-up rates in the six OECD Countries showed that on balance the two Anglo-Saxon countries, the United States followed by the United Kingdom, feature the highest start-up rates with regard to both, the ecological and the labour market approach. Germany ranks third with respect to the ecological start-up rate and fifth with regard to the labour market approach.[57] Strikingly, all German rates showed a downward trend for the period from 1995 until 2000. While a decreasing trend could be detected for most of the other countries as well, Germany was the only country which had not experienced a trend reversal by the year 2000.

Germany's third rank as far as the ecological entry rate is concerned hints at a relatively high (yet decreasing) yearly influx of new entrants to the markets. However, this rather favourable result is partly influenced by the *relatively* low *overall* number of established enterprises in Germany.[58] Section 4.3. provided

some initial evidence on a relatively low number of incumbent firms per 1.000 inhabitants in working age in Germany. In fact, Germany ranked bottom of all six countries with regard to this particular rate. However, this position is partly influenced by the fact that due to lack of other data the stock of enterprises refers to VAT-registered enterprises only, thus understating the total number of businesses in Germany.

At least as important as the presented entry rates of the selected OECD countries, is another result which suggests some caution when evaluating absolute levels or trends of start-up rates, even if they were calculated by using the most standardised data. Taken by themselves they are very difficult to interpret out of context.

In particular, one cannot make a-priori evaluations of the kind that, for example, declining start-up rates are always to be judged negatively or that increasing entry rates are always signs of a healthy economy. Thus, high start-up rates are not an economic good by themselves. This result is mainly due to the *vast heterogeneity* of start-up ventures which react in different ways to given economic framework conditions. In fact, favourable overall business conditions seem to encourage relatively larger-sized start-ups (e.g. those employing staff), whereas small scale projects (e.g. self-employed businesses) appear to be negatively affected.

For example, a tight US labour market offering many attractive opportunities in dependent employment has kept many employees (i.e. potential self-employed business owners) from starting-up. Likewise, some struggling self-employed business owners have closed down their firms and entered dependent employment because the opportunity cost of remaining self-employed had increased. At the same time, however, the number of larger sized new firms employing staff has strongly increased, profiting from the booming economy.

To conclude, the economic framework conditions such as employment and GDP growth (expectations) but also the extent of labour and product market regulation seem to play an important role in influencing the *absolute number* and *composition* of start-up projects and ultimately of enterprise start-up rates.

6. Footnotes

[1] OECD's Paris department in charge of data on entrepreneurship declared by way of telephone conversation that for the time being the OECD would use the Global Entrepreneurship Monitor's (GEM) start-up rates for their analyses. These start-up rates, however, follow a somehow different approach as they measure the degree of total *entrepreneurial activity* in a country through adult population surveys of approximately 2.000 people. These interviews include questions designed to find out whether interviewees are currently active in starting a business of some kind (nascent entrepreneurs) (cp. STERNBERG/OTTEN/TAMÁSY 2000, p. 14 f.). – The GEM's figures are projection-based and do not measure the *result* of entrepreneurial activities. The outcome of such preparatory activities is not necessarily in all cases the creation of a new firm. Furthermore, the *total* absolute number of entries cannot be specified.

[2] Underlying is the question whether economic activities in an economy are organised predominantly by market transactions (i.e. favouring a large number of rather small business units) or via enterprise-internal, hierarchy-guided transactions (favouring a relatively small *overall* number of enterprises which however are mostly larger scaled).

[3] LOVE (1995, p. 154 f.) shows that in addition to this *static*, size-distribution effect, there are also dynamic factors which operate independently of industrial structure and which influence comparisons of ecological entry rates between countries *through time*.

[4] The *stock* of existing enterprises reflects the start-up activities of the *past*. If a country generated only a relatively low number of new firms in the past, this artificially inflates *current* (ecological) start-up rates (cp. ASHCROFT/LOVE/MALLOY 1991, p. 396).

[5] AUDRETSCH/FRITSCH (1995, p. 160) uphold that the ecological approach is useful especially for analysing firm entry as an equilibrating mechanism in the *product market*, i.e. a mechanism which dissipates excess profits and prices exceeding marginal costs.

[6] The size structure of an economy exerts some (indirect) influence on the entry rate according to the labour market approach as well. As described

above, the *propensity* of an employee to start a business is generally negatively related to the size of the firm he/she is working for (cp. VIVARELLI 1991, p. 220 and EGELN/LICHT/STEIL 1997, p. 141).

[7] As the labour force also includes civil servants (e.g. government employees), the potential for start-ups might be somehow overstated. Due to the secure nature of their employment relationship (often guaranteeing lifetime-employment and provision), civil servants tend to feature a rather low propensity to become self-employed since it would entail losing their public employment status. However, it cannot be ruled out completely that some of them – e.g. those working for universities and other public research institutions – actually decide to become self-employed one day.

[8] Both "measures" conceal open unemployment by reducing the number of the official labour force. However, the outlays (rents) for the beneficiaries have to be financed by social security contributions from the working employees. This increases the cost of labour and, other things being equal, creates disincentives for the recruitment of regularly (officially) employed workers. Ceteris paribus, highly regulated economies can be assumed to feature not only a substantial shadow economy (i.e. officially *non*-recorded business activities) but also a considerable share of non-growth oriented, but rather subsistence-supporting start-up ventures, especially by low-skilled people who due to their relatively low productivity are excluded from the official (densely regulated) labour market.

[9] This section draws mainly from CARREE/THURIK (2002) and AUDRETSCH/THURIK (2001). Cp. as well, for example, AUDRETSCH/CARREE/THURIK (2001), WENNEKERS/THURIK (1999), CARREE/VAN STEL/THURIK/WENNEKERS (2000) and WENNEKERS/THURIK (1999a).

[10] Moreover, the indicator does not distinguish between different types of enterprise activities and is not weighted for magnitude or impact, although some firms develop a greater impact than others.

[11] Exempted are the liberal professions and primary production activities such as agriculture, forestry and mining.

[12] In general, a *trade registration* is required when (1) a new activity is started, (2) a business is taken over - be it through purchase or succession -, (3) a partner enters the business, (4) a change in legal form or (5) a relocation of

the business to a different registration district occurs. – Similarly, a *trade de-registration* is required when (1) a business is closed down completely or in part, (2) a business is sold, (3) a partner withdraws from the business, (4) the legal form is changed or (5) when the business is relocated to a different registration district. – Eventually, a *trade modification* is required when a business is relocated within the registration district or when it changes its economic activities.

[13] Moreover, IfM Bonn´s start-up figures do not include the relatively small number of travelling traders without a fixed business location.

[14] Small scaled enterprises are included as long as they do not operate on a part time (secondary) basis only, thus, the business should constitute the owner's main source of income.

[15] For more details cp. footnote 18.

[16] The underlying question is at what point in time an enterprise birth (defined as the start of trading) is actually recorded by the respective start-up statistics. This is often crucial for empirical studies, in particular for those making use of time series analyses.

[17] Especially, in Eastern Germany many businesses were registered which for different reasons never actually entered the market and, thus, distorted entry data. – Ceteris paribus, the legal change taken place in 1999 can be assumed to reduce the numer of trade-registrations and in particular of dormant companies. However, the Federal Statistical Office has not yet conducted any empirical analyses on this issue.

[18] For instance, the Federal Labour Office's statistics record a start-up only when an establishment (e.g. local unit) takes on the first employee liable to social security contributions. Likewise, German VAT statistics require enterprises to exceed the turnover-threshold of 16.617 € before being recorded as enterprise start-up. In both cases the actual date of start-up (i.e. start of trading) might be much earlier than the date of registration. VAT statistics have the additional disadvantage that they are compiled and published with rather long time lags of between two to three years. This is due to long deadlines for effectuating VAT-declarations.

[19] Since 1996, IfM Bonn´s start-up data are based on actual trade registration data originating from *all* 16 German Federal States, so covering the whole country. Earlier this was not the case as some Federal States did not record and submit the respective data. Until 1995 data were compiled by using a different methodology and are thus not fully comparable. For this reason, the time series starts with the year 1996 instead of 1995.

[20] The German VAT statistics covers *all* enterprises (including the liberal professions and primary production activities) which realise an annual turnover of at least 16.617 €. However, enterprises which are by law exempted from VAT – such as non-medical practioners / healing professions and insurance agents – are not covered (cp. WOLTER/HAUSER 2001, p. 45-49).

[21] In 2000, for instance, the total number of new firms (272.072) included 176.754 entirely new firms ("créations ex-nihilo"), 53.666 re-launches ("réactivations") and 41.652 take-overs ("reprises") (cp. AGENCE POUR LA CRÉATION D'ENTREPRISES (APCE) 2002, p. 4).

[22] Information provided by telephone by Mr. André Letowski, APCE's manager in charge of enterprise start-up statistics.

[23] In the future, this way of calculation will also be applied by APCE when reporting start-up figures to Eurostat.

[24] VAT is used as an abbreviation for Value Added Tax.

[25] At the time of registration, businesses are asked to estimate their turnover for the next twelve months. Besides compulsory registration, there is also the possibility to voluntarily register for VAT, e.g. in order to be able to deduct input-VAT.

[26] The VAT threshold is regularly adjusted every year and moves broadly in line with the rate of inflation, except for two large increases in 1991 and 1993.

[27] Not covered are businesses which neither run a PAYE scheme nor realise turnover exceeding the VAT-registration threshold. In all, the IBRD covers approx. 99 % of all economic activity (measured by turnover excluding VAT) in the United Kingdom. Hence, the overall *economic* importance of non-registered small scale traders (primarily self-employed business ow-

ners and partnerships) is almost negligible. - Cp. OFFICE FOR NATIONAL STATISTICS 2001, p. 74 and p. 135.

[28] By comparison, the German turnover threshold of 16.617 € is much lower than the British one (88.200 €).

[29] Cp. SMALL BUSINESS SERVICE 2001c, p. 2 and SMALL BUSINESS SERVICE 2001b, p. 1 and 5. – There is no single source of estimates of the entire business population. Therefore, the Small Business Service used a variety of sources to produce estimates of the total number of British businesses including the very small firms which do not appear on the official business register.

[30] Cp. OFFICE FOR NATIONAL STATISTICS 2001, p. 75. – Because of the limited contribution of non-VAT-registered small enterprises to the overall economy and due to high costs associated with receiving, updating and maintaining data on this small business segment, the Office for National Statistics retains the focus of its start-up statistics on VAT-registered enterprises. The potential benefits of full coverage are not assumed to outweigh the otherwise incurred costs.

[31] For instance, just over 12 % of the entirely new firms registered for VAT had been operating for more than twelve months prior to registration (cp. JOHNSON/CONWAY 1997, p. 406 f.).

[32] At the same time, England and Wales come up for 88,6 % of the total population of the United Kingdom (cp. OFFICE FOR NATIONAL STATISTICS 2002).

[33] According to information from the Small Business Service (Mr. Julian Shaw), there are no statistical data available on the *entirety* of business start-ups in the UK. Thus, there are only estimates on the total business population but no corresponding flow figures.

[34] Start-up data by Barclays Small Business Survey are frequently cited by public institutions such as the Bank of England or the Small Business Service (cp. BANK OF ENGLAND (2002), p. 16 f. and p. 38).

[35] Interestingly, approx. one quarter of Italian incorporated firms belongs to an enterprise group controlled by one head enterprise ("società capo-gruppo") which normally develops the strategies for the member enterprises (cp. U-

NIONCAMERE 2002a, p. 2 and OSSERVATORIO UNIONCAMERE SUI GRUPPI D'IMPRESA 2002, p. 1). There are considerations under way to form a new statistical aggregate "group of enterprises" in order to ease statistical and economic analyses of this phenomenon.

[36] The 146.234 derived entries can be broken down further into two subgroups: (1) approx. 85.000 transformations of established enterprises ("subentri"), whereby at least two of the firm's characteristics (location, ownership, economic sector) remain *unchanged* and (2) approx. 61.000 so-called spin-offs from still existing enterprises, e.g. separations, sale of parts of a company or creation of a dependent local unit (establishment, subsidiary). - (cp. UNIONCAMERE 2000, p. 5 and UNIONCAMERE 2001, p. 1 f.).

[37] Apart from data on enterprises as independent economic units, additional information is available on establishment level (local units, subsidiaries).

[38] For a detailed description of DIRCE, cp. CÁMARAS DE COMERCIO, INDUSTRIA Y NAVEGACIÓN DE ESPAÑA Y FUNDACIÓN INCYDE (2001, p. 45 f.).

[39] Cp. UNITED STATES GOVERNMENT PRINTING OFFICE 1999, p. 25. – According to DENNIS/DUNKELBERG/DIAL (1995, p. 47) the number and composition of US business formations and dissolutions remains a mystery as no "official" figures exist. – Similarly, the total number of businesses in the US is not definitely known (cp. U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY 1998, p. 3).

[40] Cp. DENNIS/DUNKELBERG/DIAL 1995, p. 48 and KALLEBERG et al. 1990. – Indeed, the data seem to refer (partly) to establishments (local units, thus, possibly including to some extent new dependent subsidiaries of already established enterprises) as opposed to enterprises. The Small Business Administration frequently hints at over-counts which have to be taken care of: "This estimation process avoids the over-counting that would result from totaling the state data, since some firms exist in more than one state" (cp. U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY 2001a, p. 8). If instead the figures would refer to enterprises, the described over-count would not occur.

[41] Self-employment data are produced by the monthly Current Population Survey, a joint survey by the U.S. Census Bureau and the Department of

Labor's Bureau of Labor Statistics. The self-employment data are published by the Local Area Unemployment Statistics division of the Bureau of Labor Statistics and serve as input for SBA's statistics.

[42] Self-employed owners of incorporated businesses typically pay themselves wages or salary, so that the business is considered an employer firm.

[43] The data on self-employment include agricultural *and* non-agricultural industries (cp. U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY 1999, p. A-8).

[44] In the United States, many businesses (including self-employed ones) use leased or contract employees. In cases where *all* employees are leased or contracted, the payroll for the business is zero, thus, placing it in the non-employer category (cp. U.S. CENSUS BUREAU 2002, p. C-2).

[45] Using a more expansive definition – anyone with self-employment earnings (i.e. including self-employment as a second job), raises the self-employment totals by about 1 million, most of which are likely to be small part-time ventures (cp. U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY 2000a, p. 2).

[46] It is unclear how much they overlap or how many of the self-employed are firms with employees (cp. U.S. Small BUSINESS ADMINISTRATION OFFICE OF ADVOCACY 2001a, p. 7).

[47] Furthermore, the decline in the influx of women into the labour force may have also contributed to the levelling-off self-employment trend (cp. U.S. SMALL BUSINESS ADMINISTRATION OFFICE OF ADVOCACY 2001a, p. 7-10 and DENNIS 1999, p. 3).

[48] The feasibility of this approach – for generating some rough estimates – has been confirmed by way of telephone conversation with officials from the SBA's Office of Advocacy.

[49] In France the trend reversal refers to the year 1999.

[50] In the US as well as in the UK, the total number of established enterprises (representing the denominator of the start-up rate) has fluctuated only moderately in the same time.

[51] For example, innovative, growth-motivated high-tech start-ups on one side and traditional, subsistence-oriented mom-and-pop businesses on the other.

[52] Large start-up rates in the USA are also favoured by its entrepreneurial culture. Business starters are highly estimated by the society and even in case of failure they are readily given a second chance (both for subsequent start-up projects and within dependent employment).

[53] Increasing taxation and social security contributions combined with rising state regulations are driving forces for the increase of the shadow economy, especially in OECD countries (cp. SCHNEIDER/ENSTE 2000).

[54] Germany has a labour force participation rate in the range of 72,3 %, while the one for the United Kingdom amounts to 75,2 %.

[55] Obviously, any changes of the indicator's values over time can be influenced by changes in the size of population in working age (denominator) and / or by changes in the overall number of enterprises (nominator).

[56] The U.S. Census Bureau's (2002a) non-employer statistics show that non-employer firms account only for about 3 % of total US business sales. Hence, their economic impact is rather limited.

[57] The sixth position of France regarding the labour market approach is partly explained by the special methodology of the French start-up statistics which tend to *understate* the actual extent of start-up activities (cp. section 3.2).

[58] This being another expression of the static size-distribution effect discussed in section 2.2.

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