A RECOVERY ON THE HORIZON?

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EXECUTIVE SUMMARY

Annual Report on European SMEs: A Recovery on the Horizon?

2013 shows signs of an encouraging though fragile economic turnaround for European SMEs …

2013 is likely to mark a turning point for the EU SMEs. After five years of an uncertain economic environment, 2013 is expected to be the first year since 2008 with a combined increase in aggregated employment and value-added of EU's SMEs. The total employment in the EU SMEs is expected to increase by 0.3% and value-added by 1% as compared to 2011. Preliminary forecasts expect the positive developments further accelerating in 2014. These promising projections are backed up by other positive signals. Over the last three years, an increasing number of Member States have seen their small business sectors returning to an expansion of employment and value-added, or at least a petering out of the decline. If the macroeconomic conditions hold, this development would mark the end of the most challenging crisis the European SMEs have experienced in the recent history.

… however, the legacy of the 2008-09 crisis still weighs on the growth and employment performance of SMEs, but more countries show evidence of improvement …

Viewed against the unparalleled depth and complexity of the crisis, such a turn-around is a remarkable testimony to the resilience of the EU SMEs. While in 2008-2011 the SMEs resisted the crisis better than large enterprises, in 2012 SMEs suffered a loss of jobs in the order of 610,000 jobs or a 0.7% decrease compared to 2011. Moreover, SMEs' contribution to GDP declined by 1.3% from €3.44 trillion in 2011 to €3.39 trillion in 2012. A further consequence of the crisis was that the distribution of losses in employment and value added was very unevenly distributed among the Member States. About half of the 27 EU Member States created new employment in 2012, adding roughly 0.5 million net jobs to the employment stock in their respective sectors. The losses of jobs in SMEs are heavily concentrated in the more vulnerable Member States still affected by the sovereign debt crisis. However, even in their case the decline has slowed down significantly, indicating that the small businesses are bottoming out.

… despite showing more resilience in the initial stage of the crisis, the SMEs are now trailing behind large companies in the recovery …

European SMEs were significantly more resilient than large enterprises to the 2008 crisis, particularly in employment terms. However, after the crisis it has been more difficult also for them to recover. After 2009, large enterprises were leading the recovery in terms of output (gross value added), but as of 2012 they have surpassed SMEs – albeit only slightly - also in terms of employment. Thus, by 2012, large enterprises managed to regain almost 1.1 million of the 1.6 million jobs lost in 2009. The SMEs, which lost comparatively fewer jobs in preceding years, went through a rough patch in 2012.

SMEs also trail behind large enterprises in terms of value added, since the latter have been faster to recover after 2009 and were somewhat less affected by the slowdown in 2012. Whilst large enterprises posted a decline in value added of €8.6 billion in 2012, medium-sized enterprises posted the highest loss in value added amounting to €17 billion, followed by micro-enterprises (€14 billion) and small-sized enterprises (€13.2 billion). The difference between the value added performance of SMEs and large enterprises over the period 2008 to 2012 reflects the weakness in domestic demand, which is a key market driver for SMEs, while large enterprises benefited from a better export performance. However, as domestic demand is expected to recover to some extent in 2013 and 2014, SMEs are forecast to perform somewhat similar to large enterprises over these two years.

Employment trends by size-class, EU27 (2008=100)

Value added trends by size-class, EU27 (2008=100)
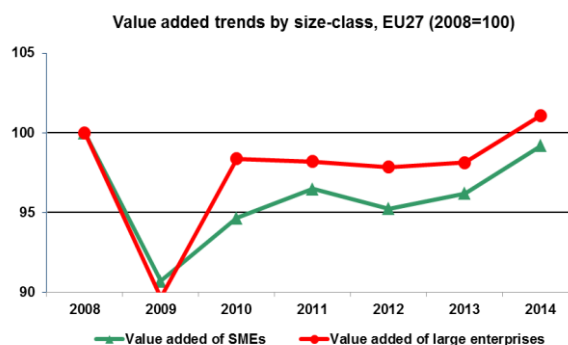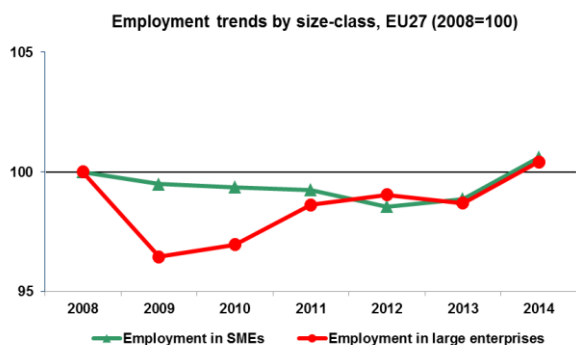
... since 2008 the weakness in demand has affected disproportionally the SMEs in the manufacturing sector, while SMEs in services performed well and predictions continue to be optimistic ...

The SMEs in the service sectors, characterised by lower barriers to entry, performed better than SMEs in the manufacturing sector. 2012 was characterised by a decline in employment and value added by manufacturing SMEs. The one exception to these negative trends was a marginal increase in the number of medium-low tech manufacturing SMEs. At the same time, the number of SMEs in the knowledge intensive service sectors (KIS) grew in all SME size classes between 2008 and 2012. During the same period, employment in KIS SMEs grew at comparable rates with large enterprises (circa 4%). Similarly, SMEs in the high-tech KIS sectors posted a substantial increase in value added between 2008 and 2012.

The poor performance of SMEs in the manufacturing sector is explained by the sharp decline of investments in capital formation and innovation caused by difficult credit conditions and the weakness of domestic demand. Indeed, the services provided to large businesses and other organisations by SMEs were less affected by tight credit conditions and, consequently, SMEs in the services sector started recovering in 2009. However, in 2013 and 2014 SMEs in the manufacturing sector are expected to undergo a significant recovery in terms of employment and somewhat less so in value added. SMEs in the service sectors, independently of the knowledge content of the services provided, are forecast to post positive growth rates in employment and value-added.

... time to move into top gear in SME policy in order to give a decisive boost to the green sprouts of recovery ...

The improvements in SMEs' performance are underpinned by an impressive number of policy measures by the EU and the Member States since 2008. These policy developments, taken under the umbrella of the Small Business Act (SBA) for Europe have been instrumental in mitigating the effects of the crisis and in creating a pro-SME policy momentum across the European Union. In 2010-2012 only, the EU's Member States implemented a total of almost 2,400 policy measures to support SMEs, i.e. an average of 800 measures per year, and almost 90 measures per country.

Nevertheless, as evidenced by statistics, SMEs are still bearing the brunt of the crisis more than large enterprises. This calls for a move into top gear in SME policy making and to give a necessary boost to the green sprouts of recovery. Some of the essential ingredients required for SMEs to recover and prosper include harmonised policies, improved conditions to access finance, strong public demand for the goods and services produced by SMEs, an appropriate attention to labour market policies, a decrease in late payments, and simpler regulatory and administrative requirements. In fact, as evidenced in the third chapter of the report, countries characterised by a business friendly environment, a modern infrastructure, technologically advanced sectors and a highly skilled workforce are expected to recover much faster to pre-crisis levels.

1. INTRODUCTION

1.1. Main theme: scope and study objectives

This report is part of the annual Small and Medium-Sized Enterprises (SME) Performance Review, which is one of the main tools employed by the European Commission to monitor and assess Member States' performance in implementing the Small Business Act 2008 (SBA).

The focus of this report is on European SMEs. SMEs are defined in terms of the number of employees and either in terms of turnover or total balance sheet as follows[1]:

Table 1: EU Definition of SMEs

Company Category	Employees	Turnover	or	Balance sheet total
Micro	< 10	< €2 million		< €2 million
Small	< 50	< €10 million		< €10 million
Medium –sized	<250	< €50 million		< €43 million

The overall objective of this report is twofold: firstly, to provide an overview of the current status of European SMEs, their structure, their contribution to employment and to the wealth of the European Union and, secondly, to analyse how and to what extent SMEs are recovering from the economic crisis and what the outlook is for the SME sector in the future.

The implementation of the SBA has brought the issue of the role and importance of SMEs in the context of social and economic development to the forefront of the policy makers' agenda. In the shadow of the global economic crisis, the strategies for economic recovery of the Member States have been changing, creating significant transformations to many SME-relevant policies and to the environment in which SMEs operate. Part of the scope of this report is the contextualisation of these dynamics in order to ascertain to what extent SME performance, Member States' policy efforts and the market environment have moved and whether this is in a coordinated direction or not.

Comparisons with important partner countries outside the EU and with the large enterprise sector are also included in this report.

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[1] As defined in EU law: EU recommendation 2003/361. The size-classes employed in this report follow the definitions employed by the Eurostat Structural Business Statistics database: micro-enterprises (0-9 persons employed), small enterprises (10-49 persons employed), medium-sized enterprises (50-250 persons employed), and large enterprises (250+ persons employed). It should be noted that this definition deviates from the official EU definition of SMEs which defines SMEs on the basis of a combination of the number of persons employed and turnover and/or the total size of the balance sheet. The SBS and EC employment size classes are identical.

2. CURRENT SME BUSINESS ENVIRONMENT & EMERGING TRENDS

2.1. The SME business environment in Europe

The 20 million European SMEs play an important role in the European economy. These are mostly micro-enterprises and in 2012 employed approximately 86.8 million people. This represents 66.5% of all European jobs for that year. Micro-enterprises provide just under a third of that total employment figure. The SME sector as a whole delivered 57.6% of the gross value added[2] generated by the private, non-financial economy in Europe during 2012.

Table 2: Enterprises, Employment and Gross Value Added of SMEs in the EU-27, 2012

	Micro	Small	Medium	SMEs	Large	Total
Number of Enterprises						
Number	18,783,480	1,349,730	222,628	**20,355,839**	43,454	20,399,291
%	92.1%	6.6%	1.1%	**99.8%**	0.2%	100%
Employment						
Number	37,494,458	26,704,352	22,615,906	**86,814,717**	43,787,013	130,601,730
%	28.7%	20.5%	17.3%	**66.5%**	33.5%	100%
Value Added at Factor Costs						
Million Euros	1,242,724	1,076,388	1,076,270	**3,395,383**	2,495,926,	5,891,309
%	21.1%	18.3%	18.3%	**57.6%**	42.4%	100%

Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

The effects of the economic crisis are still evident and on-going.

Policies to avoid a financial market collapse have been effectively adopted and implemented[3], but growth and competitiveness policies are having a much slower impact on improving the economy, due to the conflicting objectives of promoting growth and competitiveness and maintaining control of public spending.

In 2012, the GDP of the European Union declined by 0.3% and the GDP per capita did not recover to 2007/2008 levels. GDP data and other macroeconomic indicators show a mild growth forecast from the second quarter of 2013[4].

While the rate of inflation in 2013 has settled and unemployment is stable at a two-digit level, **internal demand from public and private consumption does not show clear signs of recovery**. The real economy is still mostly focussed on balance-sheet

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[2] Gross value added is the difference between output and intermediate consumption. As an aggregate measure of production, GDP is equal to the sum of the gross value added of all resident institutional units (i.e. industries) engaged in production, plus any taxes and minus any subsidies, on products not included in the value of their outputs. http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Category:Glossary
[3] The fiscal and structural reforms at Member State level, the European Stability Mechanism and other structural interventions of the European Commission and European Central Bank have contributed to a reduction of policy uncertainty (Baker et al. 2013, Leduc and Liu 2013) and the stabilisation of the financial markets.
[4] The European Economic Forecast (European Commission, 2013 a, b) presents an overall analysis of the economic situation of the EU-27. See also (Eurostat, 2013).

restructuring and de-leveraging, and gross capital investment is receding despite the favourable interest rates. Credit growth also remains slow[5].

The role of SMEs is crucial for the European economic recovery - their number, employment capacity and value added constitute a large share of the European economy. Providing the right conditions in which SMEs can flourish is paramount for ensuring a sustained recovery and achieving prosperity for all EU citizens.

Recent studies on SMEs and their contribution to growth have shown that framework conditions within which they operate and the entrepreneurial culture[6] are key factors in determining the extent of SME performance and consequently their contribution to macroeconomic growth. **Even in the presence of a strong entrepreneurial culture, however, SMEs would struggle to perform if basic framework conditions were not present**[7].

A strategic approach to policy becomes an integral part of a recovery plan and a stimulus to growth. Structural and financial policies combined with an innovation-friendly environment and entrepreneurial culture can provide greater opportunities. Nonetheless, this approach requires that attention is given to macroeconomic and other structural factors such as demand conditions, a strong research base, fostering competition and competitiveness in the presence of key assets such as human resources, finance, infrastructures and services[8]. In this framework, the role of SMEs can be a key determinant in assuring a prompt and sustainable recovery from the economic crisis.

2.2.   SME economic performance in the EU

Overall, SMEs accounted for 66.5% of all European jobs in 2012 and for over €3.4 trillion value added at current prices against a total value added produced by the private, non-financial sectors of approximately €5.9 trillion.

A considerable contribution of European SMEs in 2012 was to the services and manufacturing sectors. Both sectors combined employed 74 million people and produced €2.9 trillion of value added, with 85% of all European SMEs working in these two sectors. The construction sector, the utilities sector and mining and quarrying contributed to the remainder.

The following is a review of the importance of SMEs in the European economy, in terms of number of companies, staff employed and generation of added value. It aims to highlight recent trends and to discuss the performance of SMEs in the light of the current economic situation.

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[5] The European Economic Forecast (EC, 2013, b), p.17) estimates that in 2013 the credit growth will be limited to 0.4% on an annual basis.

[6] **Framework conditions**, refers to a general or systemic outlook including growth opportunities, rates of innovation and a system's investments in innovation. **Entrepreneurial culture** or entrepreneurial orientation refers to the **proactive behaviour towards risk-taking ventures and innovation** of the entrepreneurs.

[7] Linking SMEs, entrepreneurship and macroeconomic growth has been at the centre of many economic studies since the 1940s. recent contribution to the debate can be found in: Wennekers et al., (2010), Fotopoulos, (2012); Lumpkin and Dess (1996) and Carree and Thurik (2010). Many recent studies linking entrepreneurial orientation to SME performance also highlight the role of framework conditions in the superior performance of SMEs. See: Franks et al (2010); Rigtering et al (2013). See also Chapter 3 where these issues are discussed in detail.

[8] Miles et al (2009); European Commission (2010); Frank et al (2010).

a. Assessing the importance of SMEs in the EU: Business Demography

Figure 1 shows the **overwhelming role of the services sector**[9]**, which comprises 15 million SMEs.**

Figure 1: Number of Enterprises by Sector and Size EU-27, 2012
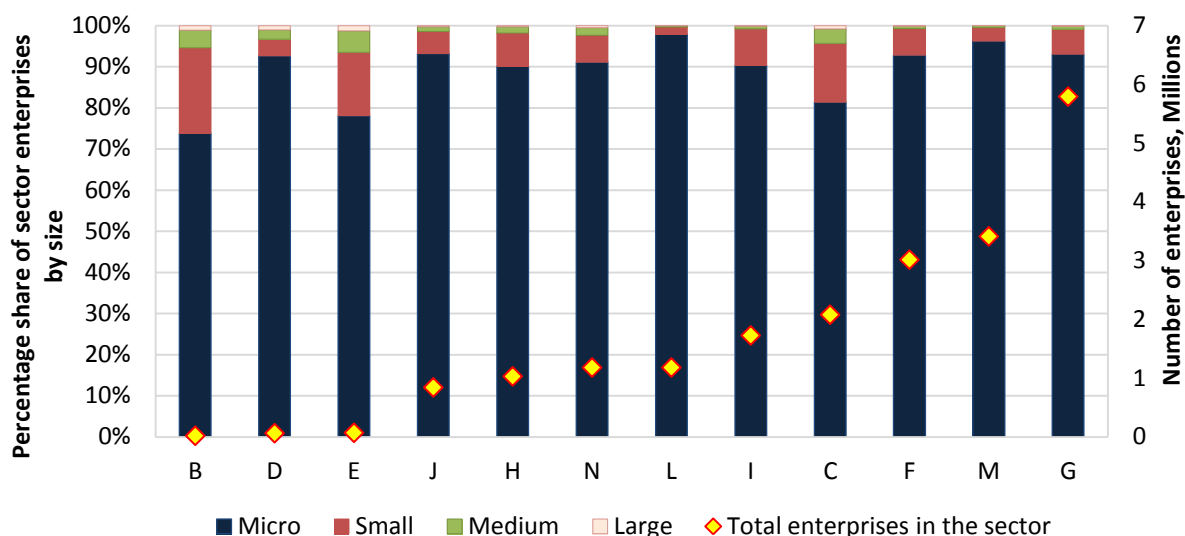
Notes: The left axis indicates the percentage share of enterprises by size class; the right axis indicates the total number of enterprises, in millions, signalled with yellow markers. Letters under the horizontal axis indicate sectors of the economy; sectors are ranked in increasing order according to their volume of employment.
Sector codes are: B, "Mining and Quarrying", C, "Manufacturing", D," Electricity, Gas, Steam and Air Condition Supply", E, "Water Supply, Sewerage, Waste Management and Remediation Activities", F, "Construction", G, "Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles", H, "Transportation and Storage", I, "Accommodation and Food Services", J, "Information and Communication", L, "Real Estate Activities", M, "Professional, Scientific and Technical Activities", and N, "Administrative and Support Services"
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

In 2012, the wholesale and retail sector comprised 5.78 million SMEs, 93% of which had less than 10 employees. Professional, scientific and technical services consisted of 3.34 million enterprises of which only circa 2,400 companies have 250 or more employees. The remainder of the service sector SMEs are distributed amongst the accommodation and food sector (1.7 million), administrative and support services (1.17 million), real estate activities (1.17 million), information and communication (0.8 million) and transportation and storage (1 million).

Almost 5.1 million enterprises operate in the manufacturing[10] and the construction sectors; of these, 99.6% are SMEs.

The utilities sector[11] (including electricity, gas, steam and air condition supply, and water supply, sewerage, waste management and remediation activities) and the mining and quarrying sector consist of some 149,000 enterprises; of these, 98.8% are SMEs.

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[9] The services sector includes G, "Wholesale and retail trade; repair of motor vehicles and motorcycle", H, "Transportation and storage", I, "Accommodation and Food Services", J, "Information and communication", L, "Real Estate Activities", M, "Professional, Scientific and Technical Activities", and N, "Administrative and Support Services". The distribution of the service sector according to the knowledge content of the services provided is presented in the Annex. A discussion of the relevance of knowledge intensity in service SMEs is carried out throughout the report.
[10] The distribution of the manufacturing sector according to the technological content of their operations is provided in the Annex. A discussion of the relevance of technology intensity in manufacturing SMEs is carried out throughout the present report.

b. Assessing the importance of SMEs in the EU: Employment

Overall, in 2012, SMEs accounted for 66.5% of employment in the private, non-financial sectors. In sectors such as real estate, accommodation and food services, professional, technical and research activities and construction, the SME share of total employment is over 80%, whilst in other sectors such as electricity, gas, steam and air condition supply, mining and quarrying and administrative and support services, the SME share is well below 50% of total employment.

Figure 2 shows the breakdown of employment by size class and sector for the year 2012.

Figure 2: Number of Persons Employed by Sector and Size EU-27, 2012
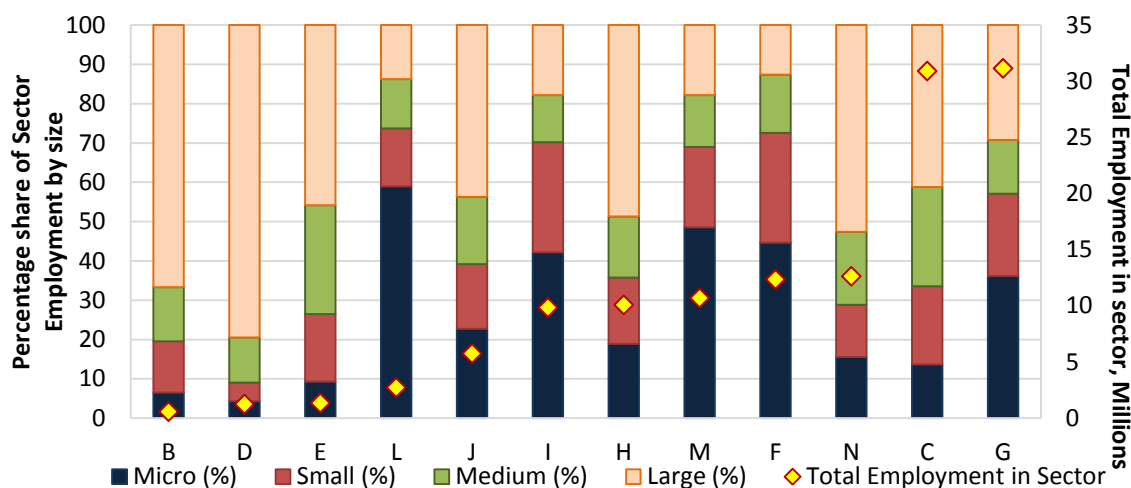
Notes: The left axis indicates percentage share of the labour force is in each size group within a sector, the right axis indicates the total number of persons employed in each sector, signalled with yellow markers. Letters under the horizontal axis indicate sectors of the economy; sectors are ranked in increasing order according to their volume of employment.
Sector codes are: B, "Mining and Quarrying", C, "Manufacturing", D," Electricity, Gas, Steam and Air Condition Supply", E, "Water supply, Sewerage, Waste Management and Remediation Activities", F, "Construction", G, "Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles", H, "Transportation and Storage", I, "Accommodation and Food Services", J, "Information and Communication", L, "Real Estate Activities", M, "Professional, Scientific and Technical Activities", and N, "Administrative and Support Services"
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

Of a total employment figure of 130.6 million in 2012, the manufacturing and trade sectors combined employed 62 million people, of which 40.5 million were employed in SMEs.

The services sector employed the largest share of workers: of the total employment in the services sector of 84 million, an estimated 56 million were employed in enterprises with fewer than 250 workers. The wholesale and retail sector led by providing 31 million jobs, 71% of which were in SMEs (22 million). The SMEs engaged in the professional, technical and research sector and the accommodation and food services sector employed the next higher figure of 17.1 million people.

The construction sector employed more than 12 million people, 10.9 million (90%) of whom work in SMEs.

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[11] The utilities sector includes D, "Electricity, Gas, Steam and Air Condition Supply" and E, "Water Supply, Sewerage, Waste Management and Remediation Activities".

c. Assessing the importance of SMEs in the EU: Value added

The overall contribution of SMEs to total EU-27 value added was more than 57% (€3.4 trillion) in 2012. However, this contribution differs markedly across sectors and by enterprise size. Figure 3 shows the contribution to gross value added by size band for different sectors in 2012.

Figure 3: Gross Value Added by sector and size, EU-27, 2012
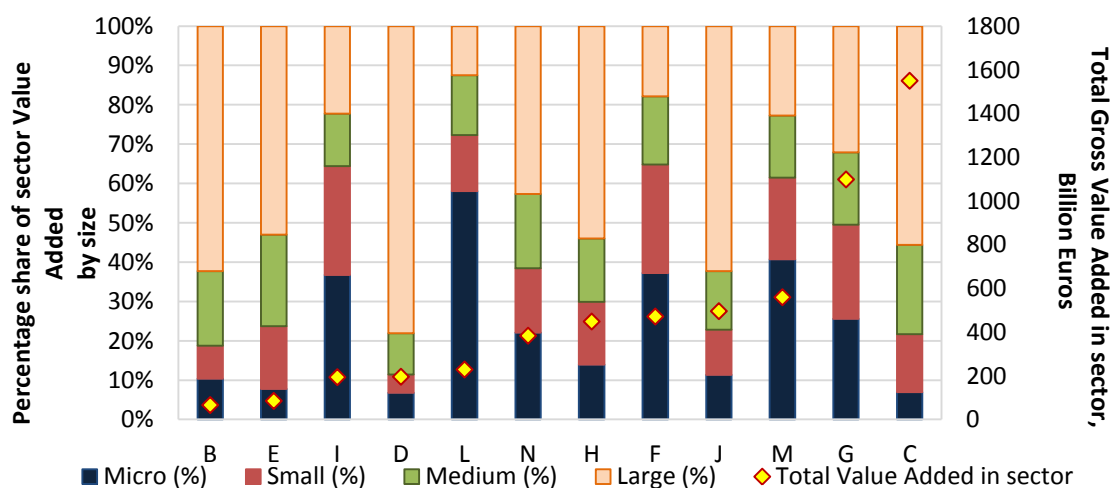
Notes: The left axis indicates the percentage share of value added in each size group within a sector; the right axis indicates the total gross value added in each sector, signalled with yellow markers. Letters under the horizontal axis indicate sectors of the economy; sectors are ranked in increasing order according to their volume of employment.

Sector codes are: B, "Mining and Quarrying", C, "Manufacturing", D," Electricity, Gas, Steam and Air Conditioning Supply", E, "Water Supply, Sewerage, Waste Management and Remediation Activities", F, "Construction", G, "Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles", H, "Transportation and Storage", I, "Accommodation and Food Services", J, "Information and Communication", L, "Real Estate Activities", M, "Professional, Scientific and Technical Activities", and N, "Administrative and Support Services"

Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

The service sectors contributed the bulk of the value added produced in the EU-27. SMEs contributed €2.1 trillion of the service sector total value added. The main contributor of the service sectors value added was the trade sector producing almost €1.1 trillion; of this, 68% is contributed by SMEs (€759 billion). Professional, technical and research services contribute €561 billion of value added in 2012, 77% of this is provided by SMEs.

Out of a total of €5.9 trillion value added produced in the European Union, the manufacturing sector provided €1.6 trillion. Manufacturing SMEs contributed 44.4% of the sectoral value added (some €707 billion).

SMEs contributed €400 billion to the construction sector out of the €485 billion total value added produced. The utilities sector's value added is estimated at €291 billion; of this, approximately 30% was contributed by SMEs. SMEs operating in the mining and quarrying sector produced only €26.3 billion of the €80 billion sectoral value added.

In sectors such as real estate, construction, professional, technical and research services, accommodation and food services and retail and wholesale trade, the contribution to the EU-27 value added was predominantly supported by SME activities. Whilst, in sectors such as utilities, information and communication and mining and quarrying, the main contribution to value added was provided by large firms.

2.2.1. Dynamics of Enterprises, Job creation and GVA

SME figures for growth, employment and value added reflected the overall trend of the EU economy over the past 5 years.

In Figure 4, the number of SMEs, their employment and their value added are set to 100 in 2008. Such rebasing facilitates a comparative analysis of the evolution and trends for these three variables in the EU-27 since the start of the financial crisis. Moreover, a closer look at each of the core indicators by size class sheds some light on the dynamics of the SME sector over the past 5 years.

Figure 4: Number of SMEs, Employment and Value Added change EU-27, 2008-2012 (2008 = 100)
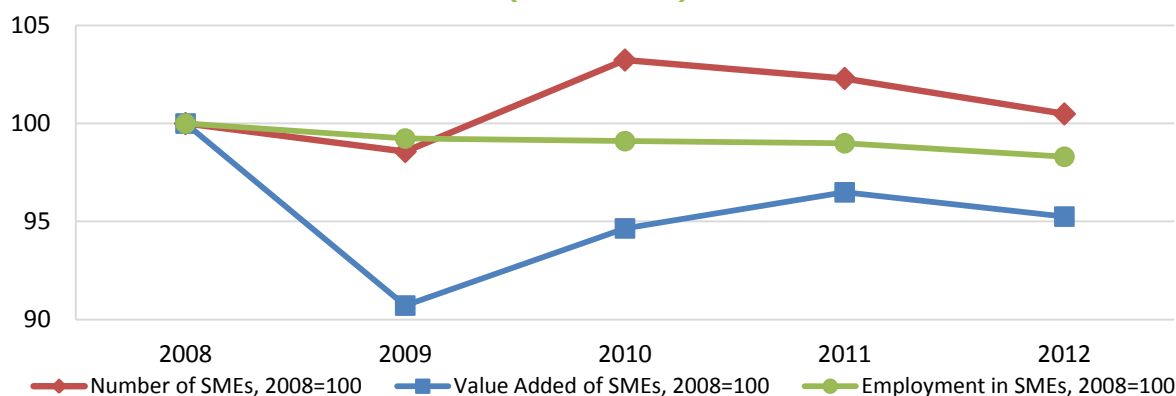
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

A definite trend in the number of SMEs cannot be identified as changes in the number of SMEs have been rather volatile. In 2012, the number of SMEs was broadly unchanged in comparison to 2008. In the intervening period, there were fluctuations, for example, in 2010 the number of SMEs was 3% above that of 2008[12].

Employment by SMEs proved to be much more resilient to the 2008 crisis than employment by large firms, although the period 2010-2012 proved rather challenging. At the EU-27 level, employment in SMEs did not exhibit a particularly pronounced swing, but during the whole period of 2008-2012, it showed a declining trend.

In 2009, the gross value added declined on average by 10% across all class sizes and in 2012, the output lost in 2009 was not recovered. Since 2008, the value added produced by SMEs mirrored closely that of the overall European economy: it dropped sharply in 2009, picked up in 2011 without reaching its previous level and declined again in 2012.

a. The dynamics of business demography: 2008 - 2012

Figure 5 shows the evolution of the number of SMEs compared to the number of large firms.

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[12] The increase in number of SMEs is accounted for by the sharp raise of micro-enterprises; just over 2/3 of this increase in micro-enterprises is mainly due to the introduction of solo-entrepreneurs in the statistical definition of SMEs in Slovakia and the introduction of simplified procedures for the registration of solo-entrepreneurs in France where the statute for "Auto-Entrepreneurs" was implemented in 2009 (see below).

Figure 5: Number of Enterprises, EU-27, 2008-12
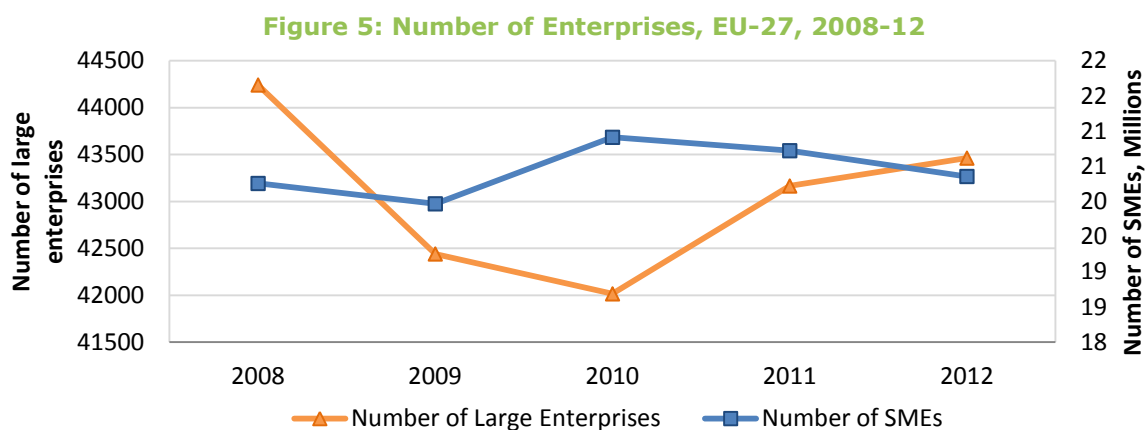
Note: Number of Large Firms: Left Axis; Number of SMEs in million: Right Axis
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

In terms of demography, European SMEs followed a different path from that of large companies. In 2009, the number of large firms dropped by almost 1,800 units to circa 42,400. Their number began to grow again only in 2010 and in 2012 had not yet recovered to its pre-2009 level.

The number of SMEs grew between 2009 and 2010 by almost 1 million firms, reaching 21 million, after a relatively small drop in 2009[13]. From 2010 onwards, the total number of SMEs continued to fall, although at a slower rate. In 2012, the number of SMEs returned to the levels of 2008, but there were still 389,000 fewer SMEs than in 2009.

Between the different SME size bands, the dynamics were quite varied (Figure 6).

Figure 6: Number of SMEs, year- on-year percentage change, EU-27, 2008-2012
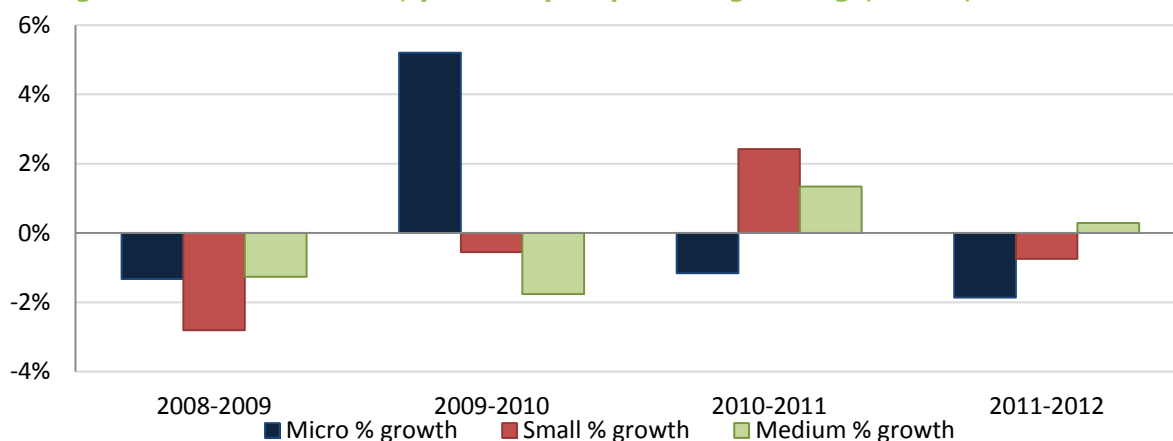
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

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[13] The increase in the number of SMEs due to the change in the definition of SME in Slovakia in 2010 including solo-entrepreneurs in the count of micro-enterprises – consisted of circa 350,000 new micro-enterprises. The effect of the policy measure introduced in France to cut red tape for business registration - the Auto entrepreneur statute - resulted in the creation of an average of 300,000 new micro-enterprises per year since its implementation in January 2009. The demography of French solo-entrepreneur can be seen in OECD (2013a); further information on the demographic effects of the introduction of the Auto-Entrepreneur statute in France can be found in Filatriau and Batto (2013, in French). The growth, net of these "anomalies", was of circa 300,000 new micro-enterprises between 2009 and 2010. Since that time, the growth rates of micro-enterprises have levelled off highlighting how entrepreneurial culture and behaviour towards risk-taking business activities in 2011 and 2012 was still subdued.

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The trend for each size band can be characterised as follows:

- **The number of micro-enterprises underwent large fluctuations.** Between 2009 and 2010, the number of micro-firms increased with a net growth of almost 1 million units. In 2011, however, their number reduced by more than 200,000. The negative trend continued throughout 2012 albeit at a lower rate. In 2012, the number of micro-enterprises was just 120,000 units above the 2008 level. These dynamics reflect a rapid turnover of firm entry and exit in the micro-enterprise category.

- **The trend in the number of small firms was negative throughout the period under review**. Despite a 2.4% growth in 2010-2011, of the 1.37 million small companies that existed in 2008, there remained only 1.35 million in 2012.

- **The trend in the number of medium firms was negative until 2010.** Although it is acknowledged that a number of large enterprises crossed over to the SME size-class, between 2008 and 2010, the sector lost approximately 6,000 firms (with their number reducing by almost 3%). Slight growth was recorded in 2012, which brought the number of medium sized firms to a total of 220,000.

b. **Employment dynamics: 2008 - 2012**

Employment by SMEs proved to be more resilient to the 2008 crisis than employment by large firms. In only one year, 2009, large firms lost approximately 1.7 million jobs, whilst SMEs lost around 677,000 jobs[14].

The period 2009-2012 proved extremely challenging for employment in SMEs.

By the beginning of 2010, large enterprises were already on the way to recovery and by 2012 regained 820,000 jobs, whereas employment in SMEs continued to trend downward. By 2012, SMEs had suffered a series of setbacks increasing the total jobs lost by 822,600. Between 2008 and 2010, SMEs had lost 1.5 million jobs. The majority of the job-loss was experienced by the micro-enterprises and small businesses (Figure 7 and Figure 8).

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[14] Due to a number of large enterprises crossing size-class, statistics are somewhat biased in showing a loss of employment in the large enterprises and a gain in employment in the SME sector. Although estimates on this phenomenon are not available, it has been documented that the downsizing of large enterprises is an on-going phenomenon and it has increased during the recent downturn. For a general discussion on downsizing, its' causes and consequences see Thurik et al, (2013) and Gandolfi and Littler (2012); Varum and Rocha (2013) and Schiliro (2012) study the phenomenon in Portugal and Italy respectively. Studies on this phenomenon are available also for Japan (Noda, 2012).

Figure 7: Number of Persons Employed, EU-27, 2008-2012
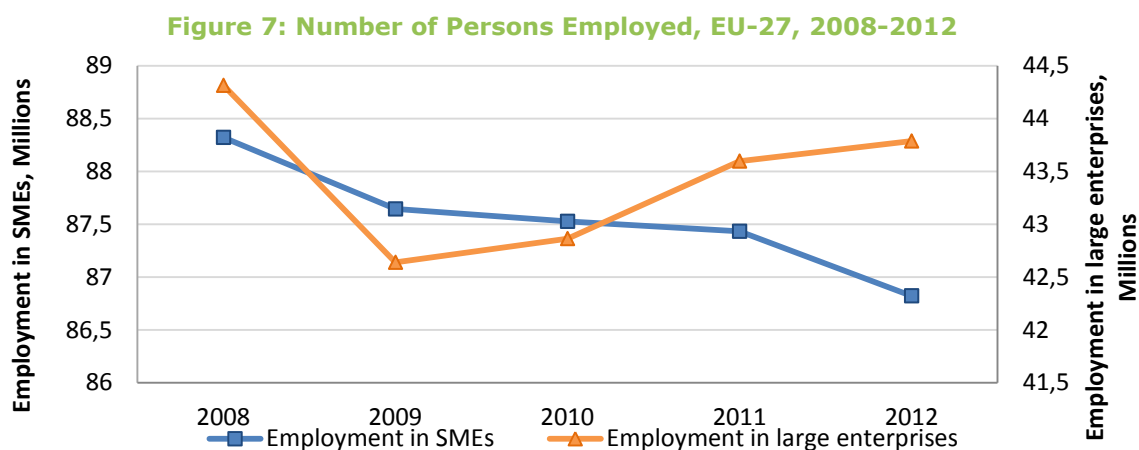
Note: Employment in SMEs in million: Left Axis; Employment in Large Firms: Right Axis.
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

Between the different SME size bands, the employment dynamics were quite diverse (Figure 8).

Figure 8: Employment in SMEs, year-on-year percentage change, EU-27, 2008-2012
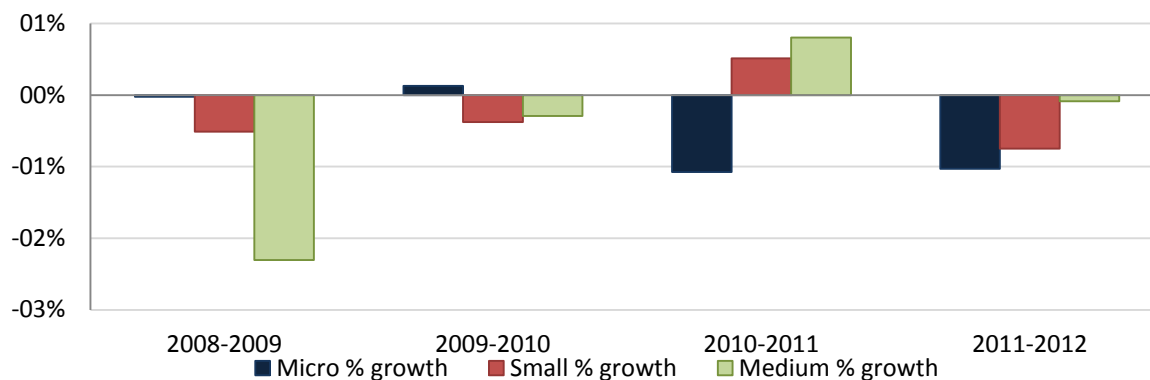
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

In 2012, SMEs lost 610,000 jobs, the trend for each SME size band can be characterised as follows:

- **Micro-enterprises performed well between 2008 and 2010, but they showed a negative trend in 2011 and 2012.** In 2012, micro-enterprises lost 387,250 jobs. Between 2008 and 2012 the total loss of employment was of 757,400 jobs.

- **The trend for small enterprises was negative throughout the period.** Enterprises employing between 10 and 49 people performed very poorly during the 5-year period of interest. The trend was negative. In 2012, small sized enterprises lost 202,600 jobs bringing the count to more than 300,000 jobs lost between 2008 and 2012.

- **The major source of job losses in 2009 was in medium sized enterprises,** which lost over 530,000 jobs. Medium sized enterprises reversed this trend in the following year. In 2012, medium sized enterprises took a further hit registering a loss of 20,000 jobs. In that year they employed 438,500 fewer people than in 2008.

The reasons for the growth in employment by micro-enterprises, between 2008 and 2010, can be ascribed to different dynamics. One factor reflects mainly a nominal change

in employment because of the introduction of "solo-entrepreneurs" in the statistical definition of SMEs[15]. To this, another source of increase in employment in SMEs should be added, that of the introduction in France of the *Auto entrepreneur statute*. In this instance, the emergence of circa 320,000 new enterprises in 2009 corresponded to an effective increase in employment of some 70,000 new jobs including unemployed and retired people aspiring to become entrepreneurs[16].

Furthermore, the number of people that, after being laid off by their employers, decided to work freelance - in some cases for their former employers - should be added to the increase in total employment by SMEs. Although detailed statistics on this last category are not available, some strong anecdotal evidence suggests that this phenomenon is widespread.

The loss of employment of small and medium sized enterprises is highly correlated with the drop in value added in these two size bands.

c. Value added dynamics: 2008-2012

In 2009, the gross value added declined on average by 10% across all class sizes. Four years later, only about half of the output lost had been recovered.

In 2009, large companies lost 10.3% (€263 billion) of value added produced the previous year; SMEs lost marginally less in percentage terms (9.3%), but consistently more in absolute terms: €331 billion.

The dynamics of value added was similar for SMEs and large enterprises (Figure 9).

After the dip in 2009, the value added recovered but only sluggishly throughout 2010. The value added of SMEs began to trend downward in 2011. All companies were hit hard in 2012: the output loss of SMEs was 1.3%, while large companies lost 0.3% of the value added with respect to the previous year.

Figure 9: Gross Value Added, EU-27, 2008-2012
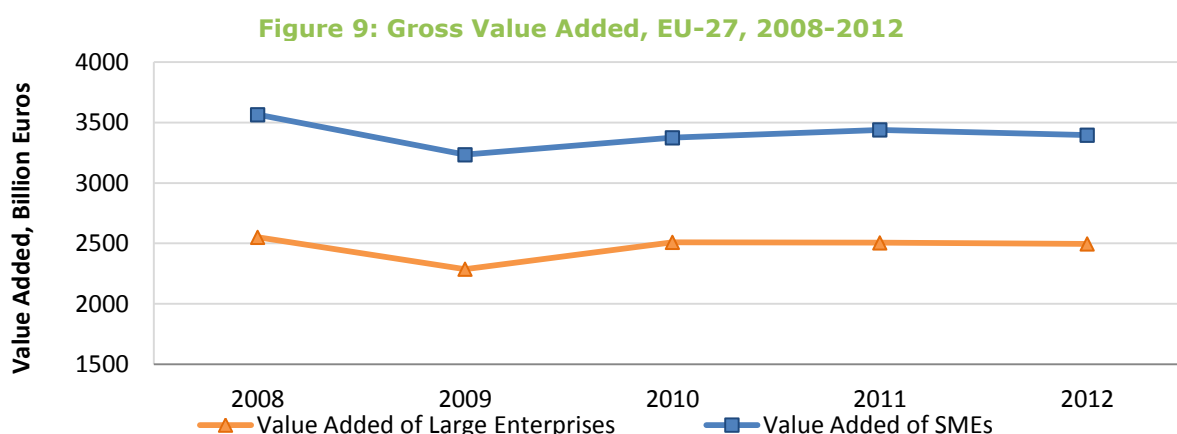
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

SME performance in terms of value added was relatively uniform in all three size bands (Figure 10).

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[15] This is the case of the Slovakian Statistics Office. In 2010 solo-entrepreneurs were included in the SME count and this increased the job count by approximately 350, 000 units.
[16] Circa 70% of the new solo-entrepreneurs did not contribute to employment growth as the new companies were created by people already in employment. For more details, see Filatriau and Batto (2013, in French) and Crumley (2009).

Figure 10: Gross value added in SMEs, year-on-year percentage change, EU-27, 2008-2012
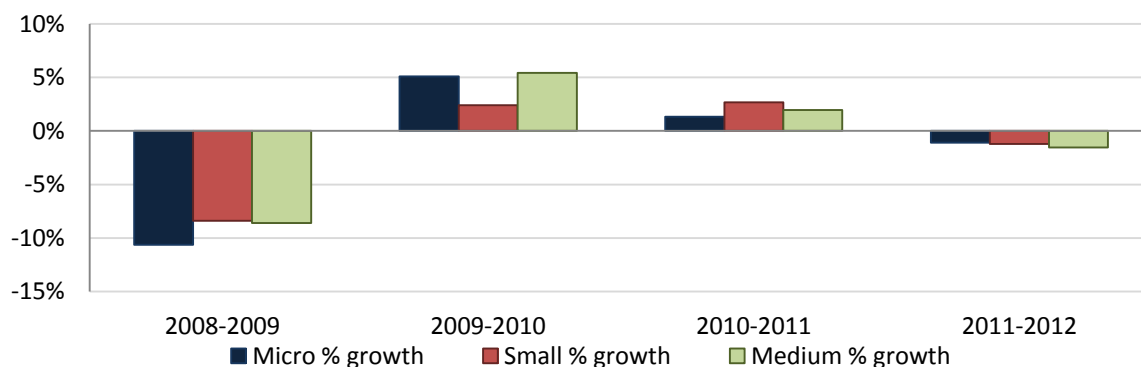
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

- **Micro-enterprises experienced the largest loss in 2009,** losing €141 billion in value added. The following year, some of this loss was recouped but, at the end of 2012, the value added lost by micro-enterprises was €78 billion. In 2012 alone, micro-enterprises lost circa €14 billion in value added.

- **Small sized enterprises did not perform much better**. In 2009, the value added of small firms reduced by €95 billion. Over the next two years, only a third of this loss was recouped and, in 2012, small companies recorded a further loss of €13.2 billion.

- **Medium sized enterprises experienced the same dynamics**: in 2009, they lost €96 billion in value added; they partially recovered in 2010 - 2011 and lost again €16.9 billion in 2012.

The dynamics of SMEs in terms of the number of enterprises between 2008 and 2012 can be summarised as volatile with a high churning rate of entry and exit. A number of SME employment and value added trends can be identified. Micro-enterprises drove the trends of SME demography, employment and value added given their relatively large number and economic importance within the group. Small and medium sized enterprises attempted a slight recovery in terms of employment in 2011. The recovery, however, was curbed the following year. In terms of value added, the recovery of small and medium sized enterprises seen in 2009/2010 tapered and showed negative growth rates in 2011/2012.

The crisis affected all the sectors of economic activity, although its consequences have not been distributed homogenously.

The structure of the private non-financial sectors of the European economy endured structural adjustments in favour of the services sector further limiting the role of manufacturing[17]**.**

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[17] The importance of the manufacturing sector for employment and growth in the European Union has been underlined by the recent European industrial policy strategy and, in particular, "Europe 2020" vision is promoting a European industrial structure that is competitive, innovative and capable of withstanding the global challenges. Recent publications by the European Commission, the European Competitiveness Report (European Commission, 2013c) and the Industrial Performance Scoreboard (European Commission, 2013d) underline the importance of the manufacturing sectors within the economy of the Union and highlight how promoting synergies with knowledge intensive services together with fostering innovation and international trade are paramount to assure sustainable growth and prosperity. Within this vision, manufacturing SMEs are invested with the important role of driving growth and generating new employment. For details on the performance of SMEs in the manufacturing sector relative to SMEs operating in other sectors of economic

Between 2008 and 2012, the services sector[18] increased its relative contribution to the total value added at current prices, whilst the total employment and the number of SMEs were virtually unchanged. Moreover, it is set on a trend of continuing gross labour productivity growth[19].

The number of SMEs in the knowledge intensive services[20] (KIS) grew in all SME size bands from 2008 to 2012. In particular, in the high-tech knowledge intensive services, the number of SMEs grew by 6%. Between 2008 and 2012, employment in KIS SMEs grew at comparable rates with large enterprises (circa 4%). Furthermore, in less knowledge intensive services, where barriers to entry are considerably low, SME employment grew by 3% (in large enterprises, employment grew by less than 2%). Both large enterprises and SMEs recorded negative growth of value added; however, in the high-tech KIS class, SMEs posted an increase in value added of 4%[21].

The manufacturing sector is under pressure to improve its performance. The relatively poor performance of manufacturing SMEs has been particularly under scrutiny because of the strategic importance of the sector[22]. **Since 2009, however, there have been clear signs that manufacturing SMEs recovered at least in terms of value added (7% growth between 2009 and 2012**). Leading the recovery were the medium sized manufacturing SMEs. At a more disaggregated level - by technology intensity of operations – in the medium-low-tech manufacturing class the number of SMEs increased marginally to values above those of 2008, whilst manufacturing SMEs in all other classes of technology intensity did not recover to 2008 levels of employment and value added[23].

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activity,   see

Table 18 and Table 19 in the Annex.

[18] As a reminder, the services sector includes: Wholesale and retail trade; repair of motor vehicles and motorcycle; transportation and storage; accommodation and food services; information and communication; real estate activities; professional, scientific and technical activities; and administrative and support services.

[19] The trend in gross labour productivity is calculated as the percentage difference in value added produced by one employee in 2012 compared to that produced in 2008.

[20] The group of Knowledge intensive services is classified according to EUROSTAT (2011) as: **High tech services**: J59, Motion picture, video and television programme production, sound recording and music publishing activities, J60, Programming and broadcasting services, J61, Telecommunications,J62, Computer programming, consultancy and related activities, J63, Information service activities, M72, Scientific research and development; **Market services**: H50 water transport, H51 Air transport, M69, legal and accounting activities, M70, Activities of head offices, management consultancy activities, M71, Architectural and engineering activities; technical testing and analysis, M73, Advertising and market research M74, Other professional, scientific and professional services N78, Employment activities N80, Security and investigation activities; **Other KIS**:J58, Publishing activities, M75 Veterinary activities. The remaining sectors are part of the **Less Knowledge Intensive Services** and are allocated as follows: G45, Wholesale and retail trade and repair of motor vehicles and motorcycles, G46, Wholesale trade except of motor vehicles and motorcycles,G47, Retail trade, except of motor vehicles and motorcycle, H49, Land transport and transport via pipelines, H52, Warehousing and support activities for transportation,I55, Accommodation,I56, Food and beverage service activities,L68, Real estate activities,N77, Rental and leasing activities,N79, Travel agency, tour operator reservation service N81, Services to buildings and landscape activities and N82, Office administrative, office support and other business support activities; **Other Less KIS**: H53, Postal and courier activities.

[21] A detailed analysis of KIS-less KIS performance in terms of the core indicators is reported in Annex I.1 and a country-level analysis is presented in the Brief on Knowledge Intensive Services by Marzocchi and Gagliardi (2013).

[22] The European Competitiveness Report (EC, 2013c) highlights the strategic importance of retaining a manufacturing base especially in relation to the complementarity with knowledge intensive services. Moreover, a highly efficient manufacturing sector may secure the participation of European companies in the global value chain which is increasingly becoming high-value added and innovative.

[23] A detailed analysis of the manufacturing sector by technological intensity of their operations is reported in the Annex and a country-level analysis is presented in the Brief on technology intensive manufacturing by Marzocchi and Gagliardi (2013).

Gross labour productivity of SMEs in the energy sector decreased by 7.4% in 2009-2012; yet, SMEs in this sector grew mainly due to favourable policies: change in taxation, "feed-in tariffs" for green-energy generation and other similar policies[24]. The sustainability of such performance is currently under scrutiny as favourable policies are now being scrapped or downsized.

Gross labour productivity of SMEs in the water supply, sewerage, waste management and remediation activities was relatively high throughout the period under consideration. The generally good performance of this sector can be attributed to the public and private investments in both updating existing infrastructure and creating new ones that have been made in most European countries in the last decade. However, the productivity of medium sized enterprises decreased by 5%, whilst productivity in micro-enterprises increased significantly (+32.1%)[25].

In summary:

- **In the wholesale and retail trade sector**, SMEs experienced a process of selection - as inefficient firms were exiting irrespective of size - and labour productivity increased for SMEs in all size bands, especially medium sized enterprises (+4.4%) and micro-firms (+4.5%).

- **SMEs operating in the manufacturing sector gained efficiency very slowly**. After a period of strong selection, the most inefficient manufacturing firms, of all sizes, have exited the sector. Manufacturing SMEs gained efficiency: within the group, medium sized enterprises performed particularly well showing an increase in gross labour productivity of 9.2% in the period 2009-2012.

- **The construction sector has been hit the hardest by the crisis.** Although in the period 2009-2012 labour productivity increased, the sector did not undergo significant structural change or restructuring of operations. Certainly, the exit from the market of circa 300,000 poorly performing SMEs contributed to an efficiency gain in gross labour productivity of 5%.

- **The best performing sectors were the utilities sectors**[26]. Between 2009 and 2012, SMEs in the energy sector (electricity, gas, steam and air condition supply) and in the water supply, sewerage, waste management and remediation activities increased in number and employment.

DId the SME sector act as a buffer for the economic crisis in Europe?

In sum, whereas the SMEs in the manufacturing sector are struggling to improve their performance in a context of declining share of manufacturing value-added in GDP[27], SMEs active in the services sector are set on an upward productivity trend, especially in the segment of knowledge-intensive services.

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[24] See for example, Junginger, van Sark and Faaij (eds, 2010) for a review of the energy sector, Travaglini, (2012) for the Italian energy sector; Costantini and Crespi (2010) for the relation between regulation, diversity and innovation in the energy sector in OECD countries.
[25] Whilst this hypothesis is still under investigation by the broader community, it is important to highlight how innovation in this sector can have a great potential in further increasing productivity and profitability within the industry. Thomas and Ford (2005) show that the water supply, sewerage, waste management and remediation activities are still traditional sectors and are in dire need of a renovation. The innovation potential is high and can have an important role in increasing productivity and drive the overall efficiency of operations in this sector.
[26] As a reminder, the utilities sector includes the electricity, gas, steam and air condition supply; and the water supply, sewerage, waste management and remediation activities.
[27] European Competitiveness Report (European Commission, 2013c)

However, compared to the US and Japan, the dynamics of SMEs in Europe have been rather smoother[28]. The contribution of SMEs to the European economy has been that of a safety net in the wake of the crisis, since larger companies have been hit relatively harder. From 2009 onwards, however, whilst the European economy is still struggling to overcome the on-going financial and economic crisis, European SMEs are trailing behind the larger enterprises on their way to recovery.

2.2.2. Forward looking analysis

Forecasts for the number of SMEs, SME employment and value added by SMEs are mildly optimistic; in 2013, SMEs will return to positive growth rates in employment and value added[29].

The number of SMEs in 2012 was still 3.1% below the 2008 level after a drop in 2011 from the higher figure achieved in 2010. In 2013 and 2014, the number of SMEs in the European Union is forecast to continue to grow and by 2014 the number of SMEs will be only 1.1% below its 2008 level. The growth in each class size is fairly uniform; however, the number of micro-enterprises is expected to grow slightly more than the number of small and medium sized enterprises.

Overall, SMEs in the private, non-financial sectors are forecast to post increases in value added, employment and gross labour productivity for the period 2013 – 2014[30].

Figure 11 shows the forecasts for SME employment, value added and productivity indexed at the base year 2008 to allow for comparisons with the analysis undertaken in the previous section.

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[28] A comparative analysis with the US, Japan and other countries is developed in the next section. Nonetheless it is worth noting that, compared to the US, where SMEs have been subject to great cyclical fluctuations, and Japan, where SMEs have suffered from over a decade of relatively poor industrial performance and the disasters of the Great East Japan Earthquake, European SMEs withstood the 2008 crisis with little fluctuations in employment and value added.
[29] Relative to the forecast accompanying the 2012 Annual Report on European SMEs, this year's forecast is characterised by weaker value added, gross labour productivity and employment growth in 2013 reflecting a combination of a weaker-than expected SME performance in 2012, which depresses the 2013 annual growth rate, and sluggish economic activity in the first half of 2013. The modest pick-up in the overall pace of economic activity observed in the second quarter of 2013 is expected to gain momentum through the second part of 2013 and into 2014. Provided the world economy is not hit by any major shocks, the performance of SMEs is forecasted to improve.
[30] Gross labour productivity is more sector-specific. A detailed analysis of this aspect is presented in Annex I.

Figure 11: SME Employment, value added and productivity, EU-27, 2011 - 2014, 2008=100
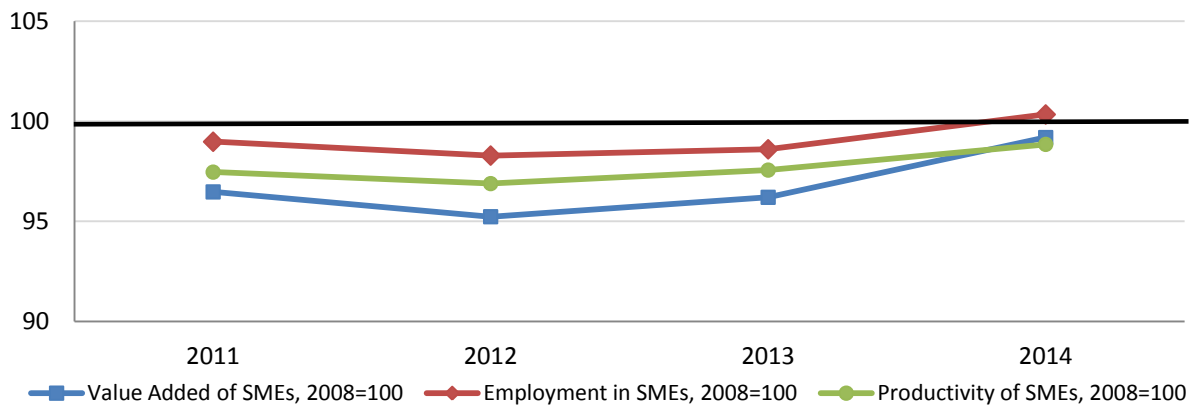
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

Employment by SMEs is forecast to grow for the two following years from a low point in 2012. The 2008 level of employment achieved by SMEs is expected to be achieved by 2014.

Value added produced by SMEs, after the setback in 2012, is forecast to begin to grow again in 2013, but the level of value added produced by SMEs in 2008 will not be recovered in 2014. Forecasts for value added are trending upwards for all sizes bands after 2012. Micro-enterprises will produce the largest volumes of value added and slightly outperform small and medium sized enterprises.

SMEs in the service sectors are set on a growth path of employment and value added that is likely to continue well into 2013 and 2014, whilst manufacturing SMEs are likely to resume positive growth in employment and value added.

In particular, growth in services is expected to broaden in the period 2013-2014 to include SMEs in all service sectors, whilst in the period 2008 – 2012 this was limited only to knowledge intensive services (KIS) (Figure 12).

Figure 12: SME enterprises, employment and value added in KIS by and size class, percentage change 2012 - 214, EU-27
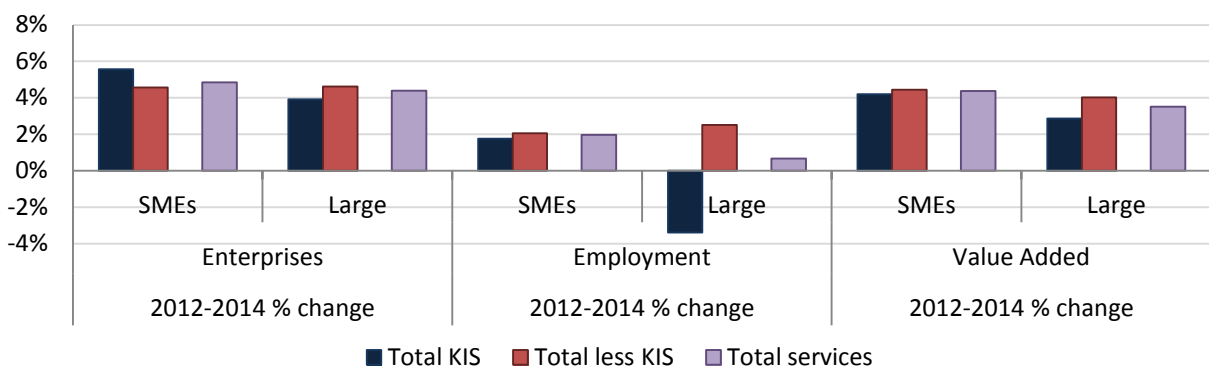
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

Furthermore, due to generally low entry-barriers and a low minimum efficient scale in services, SMEs are also set to outperform large enterprises[31].

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[31] Market services provided by large firms are forecast to decline 5% in the period 2012- 2014 in terms of employment. This decline affects the employment in the whole Knowledge intensive service provided by large firms, which is forecasted to decline by 2.4%.

In 2013 and 2014, SMEs in the manufacturing sector are expected to undergo a recovery in terms of employment and value added resuming positive growth rates after having witnessed heavy losses in value added in 2012. This recovery is accompanied by some growth in gross labour productivity, indicating that labour efficiency gains by SMEs have been integrated into operations. The trends described above are consistent for each class of technological intensity[32] and size class (Figure 13).

Figure 13: SME enterprises, employment and value added in Manufacturing by technology intensity, percentage change 2012 - 2014, EU-27
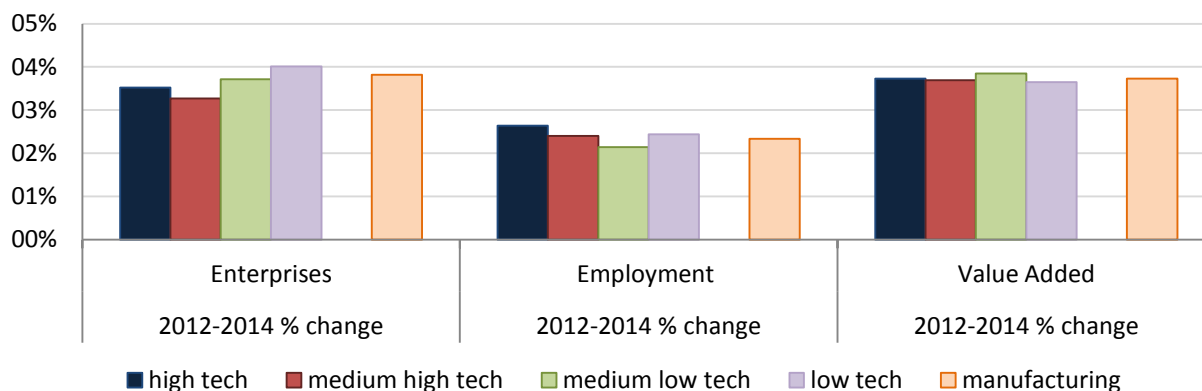
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

Manufacturing growth is also expected to broaden to all classes of manufacturing SMEs in the period 2012–2014. This trend contrasts with the developments over the period 2008-2012 where high-tech and medium to high-tech SMEs declined at consistently lower rates than medium-low-tech and low-tech manufacturing.

In conclusion, large enterprises experienced the highest decline across all core indicators in 2009. However, the recovery of large enterprises began in 2009 and has been relatively more unwavering than the recovery of SMEs. Furthermore, large enterprises were somewhat less affected by the slowdown in 2012. The difference between the value added performance of SMEs and large enterprises over the period 2008 to 2012 reflects the weakness in domestic demand, which is a key market driver for SMEs, while large enterprises benefited from a better export performance. As domestic demand is expected to recover to some extent in 2013 and 2014, SMEs are forecast to perform somewhat better than large enterprises over these two years.

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[32] The group of manufacturing industries can be divided into: **High-tech industries** - manufacture of basic pharmaceutical products and pharmaceutical preparations (C21) and manufacture of computer, electronic and optical products (C26); **Medium-high-tech** industries manufacture of chemicals and chemical products (C20), manufacture of electrical equipment (C27), manufacture of machinery and equipment n.e.c. (C28), manufacture of motor vehicles, trailers and semi-trailers (C29), manufacture of other transport equipment (C30); **Medium-low-tech** - Manufacture of coke and refined petroleum products (C19), manufacture of rubber and plastic products (C22), manufacture of other non-metallic mineral products (C23), manufacture of basic metals (C24), manufacture of fabricated metal products, except machinery and equipment (C25), repair and installation of machinery and equipment(C33); **Low-tech -** manufacture of tobacco products (C12), manufacture of textiles (C13), manufacture of wearing apparel (C14), manufacture of leather and related products (C15), manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials (C16), manufacture of paper and paper products (C17), printing and reproduction of recorded media (C18).

2.3.   Comparison with Candidate countries, US, Japan, BRIC countries

This section of the report summarises the situation of SMEs outside the EU-27 in the reference period. In particular, the report takes into consideration Croatia, which joined the EU in July 2013, selected candidate countries and Norway as an associate country.

SME dynamics, in terms of the number of enterprises, employment and value added, in the US, Japan, Brazil, Russia, and India will be compared, where possible, with the SME dynamics in the EU-27.

Croatia

Figure 14 reports the annual percentage changes in core indicators comparing SME performance in the EU-27 and Croatia.

Figure 14: Number of SMEs, Employment and Value added, year-on-year percentage change, EU-27, Croatia, 2009-2012
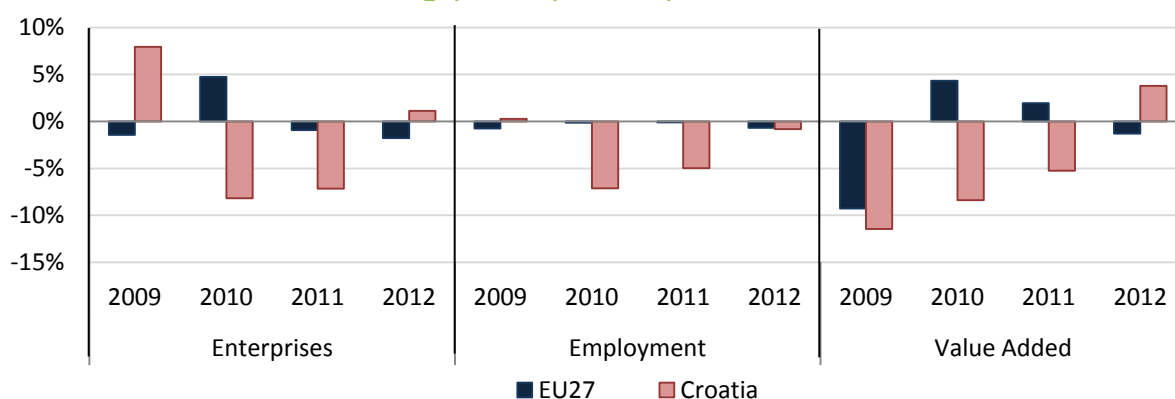
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

The dynamics of enterprise growth in Croatia show significant variation in the number of SMEs registered since 2008. Croatia experienced remarkable growth in the number of firms in 2009; however, the indicator shows a downward path until 2011.

Employment dynamics in Croatian SMEs are not very different from those of the European Union where employment figures followed a declining trend throughout the whole period. **In Croatia, SME employment was steady from 2008 to 2009 and then fell into a decline, not recovered yet in 2012.**

The value added indicator for Croatia also shows a different trend in comparison to European SMEs. **Value added produced by Croatian SMEs followed a trend of constant decline from 2008 to 2011,** but there did appear to be a slight recovery in 2012.

Whilst the performance of Croatian SMEs has been predominantly negative in the period 2008-2011, the recent upswing in 2012 can be attributed to the growth in exports of goods and services where SMEs are catching up with large enterprises[33] and to the

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[33] This assessment has been made on the basis of data published by the Ministry of Entrepreneurship and Crafts (2013). According to the SMEs Observatory Report 2013, SMEs have gained 4% of the share of exports in comparison to large enterprises. Export revenues by Croatian SMEs has been on a growing trend since 2009 and increased by over 1% between 2011 and 2012. The highest percentage of exports comes from the manufacturing sector, 19%, followed by the wholesale and retail services sectors, 9%.

growth of foreign direct investments (FDI), which registered a 2.4% increase as a percentage of the country's GDP in 2012[34].

SME performance in selected Candidate Countries and Norway[35].

The number of **SMEs in the Former Yugoslav Republic Of Macedonia** (FYROM) was on a steady, positive trend up to 2010 but in 2011 began to decline. The trend in employment by Macedonian SMEs has been positive since 2008. Nonetheless, unemployment in 2012 was still extremely high at around 30%. The growth in value added experienced in the FYROM diverges significantly from that of the European Union: in 2010 and 2011 the gross value added was 15% above its 2008 level.

The reasons behind these trends can be found in the initial low levels in the number of enterprises, employment and value added in Macedonian SMEs. In the FYROM, SMEs are trying to upgrade to a higher value added production; nevertheless, the FYROM's industrial policies are still partial and, in some cases, insufficient[36].

Serbian SMEs grew steadily in number during the period 2008 – 2011. Nonetheless, the job losses by Serbian SMEs were more pronounced than for SMEs in the European Union. In 2010, Serbian SME value added was over 18% lower compared to 2008. The following year Serbian SMEs experienced an increase of 8.6% in value added.

The reasons behind Serbian SME performance can be attributed to the volatile business environment characterised by an unstable financial sector - the credit market for SMEs is heavily subsidised - and low demand. Although the pre-election expansive fiscal and industrial policies breathed some life into the economy, key sectors still performed poorly, with the exception of the information and communication service sectors that demonstrated a large increase of +10% since 2011, which continued into 2012[37].

The number of **SMEs in Iceland** declined by 1% between 2008 and 2009 and the negative trend continued through to 2011. Between 2008 and 2011, Iceland lost 4,200 SMEs. Employment in Icelandic SMEs also followed a declining trend: in 2011, SMEs employed circa 15,700 fewer people than in 2008[38]. Value added produced by Icelandic SMEs was hit very hard by the financial and economic crisis. Slight signs of recovery were, however, registered during 2010-2011.

Economic conditions in Iceland are well reflected in the SMEs performance. The country was particularly exposed to the 2008 crisis and all financial and macroeconomic indicators showed steep downward trends. Financial and structural reforms were exceptionally drastic and although pre-crisis values for the indicators have not been reached, Icelandic SMEs are recovering[39].

In **Norway,** at the end of 2012, there were circa 1,100 fewer SMEs than in 2008. In 2012, Norwegian SMEs employed circa 10,000 fewer people than in 2008. The dynamics

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[34] European Union, Economic and Financial Affairs Directorate General (2013).

[35] In this section, the report discusses the SME performance in the Former Yugoslav Republic of Macedonia (FYROM), Serbia, Iceland and Norway. A summary table is presented in the Annex (Table 20).

[36] The 2013 assessment of the European Union, Economic and Financial Affairs Directorate General (2013) shows how macroeconomic conditions, although generally on course for recovery (gross fixed capital formation growing consistently from 2008 to 2012 and unemployment decreasing from 33.8% in 2008 to 31% in 2012), have been extremely fragile throughout the period under revision. The sector that performed better in these last few years has been the construction sector, whilst private demand and other indicators of economic performance have been rather volatile. See also EC (2012a) - COM(2012) 600 final.

[37] European Union, Economic and Financial Affairs Directorate General (2013), cit.

[38] This datum is rather impressive considering that the total population of Iceland is approximately 320,000 inhabitants.

[39] European Union, Economic and Financial Affairs Directorate General (2013), cit.

of value added followed the same pattern: in 2012, the value added by SMEs was lower than in 2008. After an 11% drop between 2008 and 2009, the value added produced by Norwegian SMEs in 2010 was higher than in 2008. Norway then went into a double-dip recession with a decline of over 3% that was not recovered in 2012.

The overall performance of Norwegian SMEs during the 2008 crisis can be explained by government policy intervention and the Norwegian SMEs' openness to international markets. SME innovation policy during this period was very much centred on the principles of networking and innovation. In fact, network building activities enabled SMEs to be more active in foreign markets[40].

Other non-EU countries: US, Japan, Brazil, Russia and India[41]

The United States was hit harder than the European Union by the 2008 crisis. In the US, SME figures for growth, employment and value added[42] showed different trends from those of the European Union.

By 2010, the number of SMEs in the US was still trending downward. The number of SMEs in the US had reduced by 5% by 2010, whilst in the European Union it was growing albeit by only a few percentage points (Figure 15).

Figure 15: Number of SMEs, USA and EU 27, 2008-2010, 2008=100
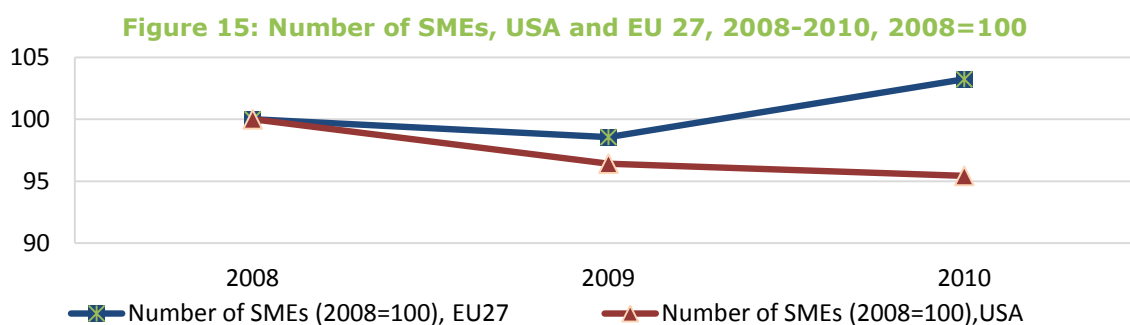
Source: Census Bureau, Department of Commerce, DIW econ

Employment in American SMEs[43] exhibited a pronounced negative trend over the period 2008-2010 (Figure 16).

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[40] Ebersberger and Herstand (2013).
[41] A summary table of available core indicators is presented in the Annex.
[42] The size class definition for SMEs in the US differs from the standard European definition: in the USA a micro-enterprise is defined as employing between 0 and 9 people, a small sized enterprise has between 10 and 49 employees, a medium sized enterprise has between 50 and 299 employees and a large enterprise employs over 300 people. Due to the introduction of solo-entrepreneurs in the statistical count of micro-enterprises in Slovakia which boosted the number by circa 350,000 SMEs and the introduction of the Auto entrepreneur statute in France which boosted the number of solo-entrepreneurs by circa 300,000 per year since 2009, the comparison of micro-enterprises between the EU and the USA is not applicable. Moreover, there is no estimate available of the bias that the difference in the definitions of medium sized enterprise has on the total count of enterprise, employment or value added; therefore comparisons of micro and medium sized enterprises between Europe and the US are not possible. Small sized enterprises are however comparable.
[43] In the US, employment in the small sized enterprises class reduced by 6% in 2009 and 2.5% in 2010. Comparably, European small sized enterprises performed rather better: -0.5% in 2009 and -0.4% in 2010.

Figure 16: Employment in SMEs, USA and EU-27, 2008-2010, 2008=100

——■—— Employment in SMEs (2008=100), EU27   ——▲—— Employment in SMEs (2008=100), USA
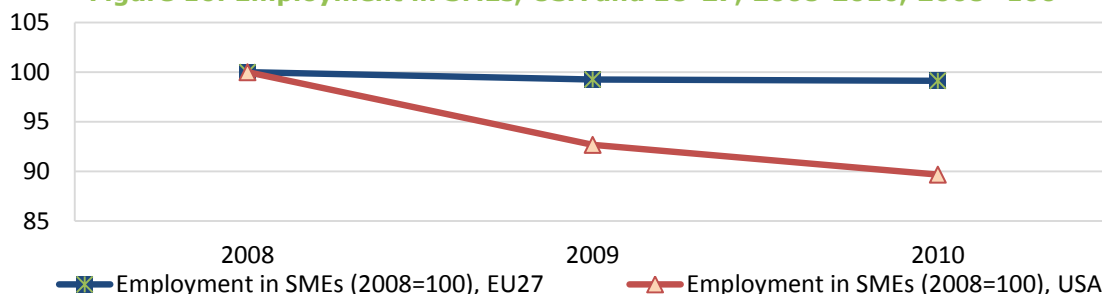
Source: Census Bureau, Department of Commerce, DIW econ

In terms of employment, SMEs in the US performed rather poorly compared to those in the European Union. In 2009, whilst there was a drop in employment of less than 650,000 jobs in the European Union, in the US the count of job losses by SMEs reached 2.8 million and the trend for the subsequent year was also negative. This data is even more striking if one considers it in the context of the different population sizes: the US population consists of less than 320 million inhabitants whilst the EU-27 total population is in excess of 500 million inhabitants.

The value added by SMEs in the US had different dynamics from that of the European Union (Figure 17).

Figure 17: Value Added by size class, USA, 2008-2011, 2008=100

——●—— Micro (0 - 9)   ——♦—— Small (10 - 49)   ——■—— Medium (50 - 299)   ——▲—— Large (300 +)
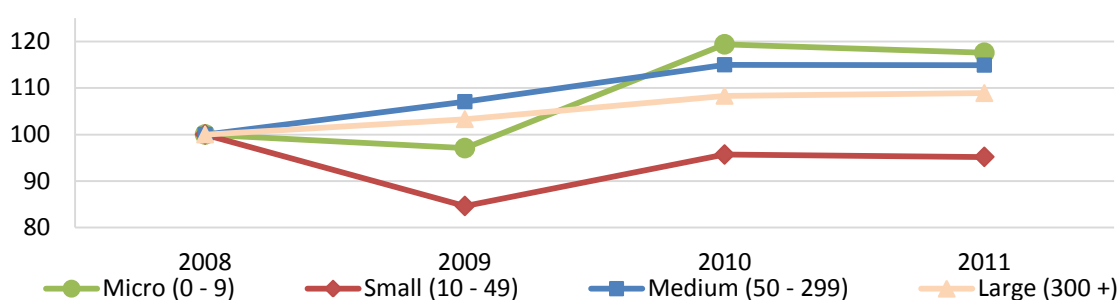
Source: Census Bureau, Department of Commerce, DIW econ

The value added produced by American SMEs dropped sharply in 2009 but recovered relatively quickly between 2009 and 2010, even though it declined again in 2012[44].

The performance of American SMEs in terms of the number of SMEs, employment and SME value added has been somewhat amplified by the characteristics of the US economic environment. In other words, SMEs in the US have felt the full extent of the financial crisis: disruptions in the credit and financial markets, sharp contraction of internal and external demand and a 35-year low business expectation have put SMEs in a difficult situation and many have closed down operations. The system of industrial relations in the United States can also explain the relatively sharper drop in SME employment. In the US system of industrial relations, during the business cycle, employment is in fact subject to much larger fluctuations than in the EU, which, in

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[44] Value added of small sized enterprises in the US dropped by 15% in 2009, recovered about 4/5 of the loss in 2010 to decline again in 2011. Comparably, the loss in value added by small sized enterprises in the EU-27 in 2009 was much limited: -8.4%. In 2010 and 2011, European small sized enterprises grew by 2.4% and 2.7% respectively.

comparison, performed rather better[45]. Nonetheless, American SMEs are on a course to recovery at a faster pace than their European counterparts, in particular with comparatively higher value added growth.

Japanese SME figures are not comparable with European SME figures[46]. Japanese SMEs, however, performed rather poorly in terms of number of enterprises and employment.

Weakened by almost two decades of poor economic performance, the consequences of the global economic crisis and the effects of the Great East Japan Earthquake, the years 2009-2012 were characterised by negative trends in both employment in SMEs and the number of firms.

In 2009–2010, only large and medium sized enterprises grew in number. From 2010 onward, the number of medium sized enterprises began to decline following the negative trend of micro and small enterprises (Figure 18).

Figure 18: Number of Enterprises by size class, year-on-year percentage change, Japan, 2009 - 2012

■ Micro % change   ■ Small % change   ■ Medium % change   □ Large % change
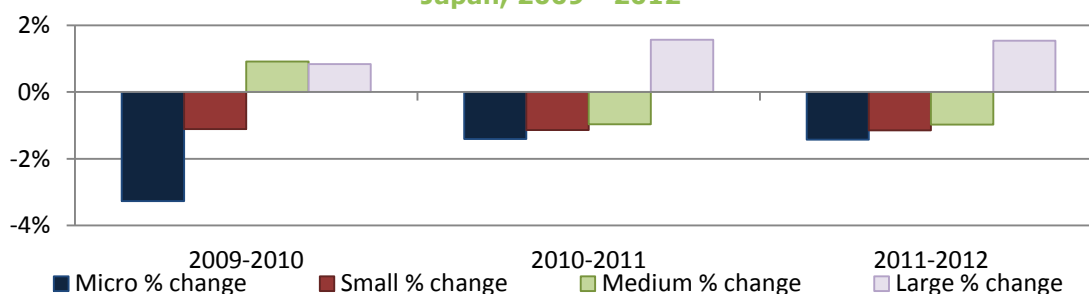
Source: MIc-e-Stat, OECD, DIW econ

Employment in SMEs followed a similar trend: in 2009-2010, only the medium sized enterprises registered a growth in employment, whilst micro and small enterprises were already on a declining trend. The following year the medium sized enterprises joined the declining trend, which continued until 2012.

While the 2011 Great East Japan Earthquake is mostly responsible for the poor performance of the SME sector, the Japanese economy had already undergone a long period of relatively poor performance that began in the early 1990s and affected the general performance of the whole Japanese economy and that of the SMEs[47]. In particular, the earthquake, the tsunami and the disaster at the Fukushima nuclear power plant affected the eastern prefectures of the country where approximately 10% of Japanese SMEs are located. In this large area, the activities of more than 67,000 SMEs

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[45] For reference, please see: Pontusson, (2005); Bassanini and Garnero, (2013) amongst others.

[46] Data on SMEs in the European Union and Japan are not comparable. For Japan, data on SMEs are incomplete: the indicators "Number of Enterprises" and "Number of Persons Employed" do not include figures for the following sectors: B "Mining and Quarrying", D "Electricity, gas, steam and air condition supply", E "Water supply, sewerage, waste management and remediation activities", N "Administrative and Support Services". Value Added information is not available for SMEs. Moreover, size class definitions for Japan are also different from the European standard definition: Manufacturing SMEs are defined as enterprises with up to 300 employees, Large (300+); the definition of SMEs in the service sectors - other than retail - is of an enterprise with less than 100 employees, whilst in retail an SME is defined as employing less than 50 employees. A full comparison with the EU-27 economy is therefore not feasible.

[47] The main sources are the Ministry of Economy, Trade and Industry (METI) and the Small and Medium Enterprise Agency. See in particular: METI and JSBRI (2012) White Paper on Small and Medium Enterprises in Japan (2012) and the Small and Medium Enterprise Agency (2013) Key points of the 2013 White Paper on Small and Medium Enterprises in Japan (2013). For a "political economy" explanation of the poor performance of the Japanese economy since the beginning of the 1990s, see Tsunekawa (2011).

have been virtually halted. Far reaching effects of the disaster have also been felt outside these prefectures. In addition to the effects of the aftermath of the Great East Japan Earthquake, the decline of internal and international demand and the appreciation of the Yen against all major currencies have all played a part in hampering the recovery of Japanese SMEs.

Brazilian SMEs experienced a period of remarkable expansion in the years 2008-2010. Comparing the performance of European SMEs to that of Brazilian SMEs demonstrates divergent trends as Brazilian SMEs performed extremely well in all dimensions. The number of enterprises and employment have grown steadily by about 5% a year since 2008, whilst value added grew by 2% in 2008-2009 and accelerated in 2009- 2010 by almost 40%.

Meanwhile in **Russia,** the number of SMEs grew at a faster pace than in the European Union. Although data for Russia are not comparable[48], the number of SMEs grew steadily throughout the period and in 2011 there were 35% more SMEs than in 2008. However, employment in Russian SMEs has been declining constantly since 2008. The reasons behind the Russian decline in SME employment can be ascribed to the on-going restructuring of the SME sector, which has particularly affected micro and small sized enterprises.

Finally, **Indian SMEs**[49] have shown a largely positive performance since 2008. Whilst data are not directly comparable with the EU, the Indian SME population has been expanding at an increasing rate: it grew 1.7% in 2008/2009 and 2.4% in 2010/2011. The same trend was also recorded for employment in SMEs: the annual growth rate of SME employment was 2.4% in 2008/2009 and reached 3.4% in 2010/2011.

In summary, the positive performance of SMEs in emerging countries is in stark contrast with the performance of SMEs in the European Union, in Japan and the US. In Brazil, Russia and India, SMEs are benefiting from the sustained growth in economic activity that has characterised these economies in the last decade. SMEs in those countries are set on a development path supported by skills development and technology upgrades whilst access to credit has only marginally been affected by the 2008/2009 economic crisis.

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[48] Russian standard classification defines micro-enterprises as those firms employing up to 15 employees; small firms are those with 16 to 100 employees, and medium sized enterprises are those with 101 to 250 employees. SME indicators are scarce and sector information provided is at NACE Rev1.1 whilst for EU-27 SMEs are provided at NACE Rev 2 thus comparisons should be taken with some caution.

[49] Indian SMEs are defined as: any enterprises engaged in production of goods pertaining to any industry & other enterprises engaged in production and rendering services, subject to limiting factor of investment in plant and machinery and equipment respectively. In the manufacturing sector, a micro-enterprise is characterised by investments in plants and machinery not exceeding 25 lakh rupee (circa €30.000); a small enterprise is characterised by investments in plant and machinery above 25 lakh rupee (circa €30.000) but not exceeding 5 crore rupees (circa €600,000) and medium sized enterprises are characterised by investments in plant and machinery above 5 crore rupees (circa €600,000) but not exceeding 10 crore rupees (circa €1,200,000); in the services sector, a micro-enterprise is defined by investment in equipment not exceeding 10 lakh rupees (circa €12,000), a small sized enterprise is characterised by investment in equipment above 10 lakh rupees (circa €12,000) but not exceeding 2 crore rupees (circa €240,000) and a medium sized enterprise is characterised by investments in equipments above 2 crore rupees(circa €240,000) but not exceeding 5 crore rupees (circa €600,000), http://www.dcmsme.gov.in/.

3. SME PERFORMANCE: ANALYSIS & POLICY IMPLICATIONS

This chapter tackles the links between the performance of SMEs, in terms of SME value added and employment growth, and the factors that affect this performance.

The analysis develops firstly, by studying SME performance in terms of the three core indicators at country level: number of SMEs, employment and value added. The aim is to identify Member States that are on the path to recovery and those that are lagging behind[50]. Secondly, a cluster analysis[51] is employed in order to study SME performance in countries with similar structural characteristics. Thirdly, a statistical analysis is proposed. This aims at identifying the main contributors to SME growth; it consists of the study of correlation between SME performance variables, value added and employment growth during the crucial period following the crisis, and a set of macroeconomic and structural variables. The scope of this exercise is to unveil the macroeconomic and structural factors related to growth in SME value added and employment. A selected sub-set of structural and macroeconomic factors identified in the correlation study have been employed as explanatory variables in two cross-section regression models, for assessing SME value added and employment between 2009 and 2011[52]. Finally, SME demography and related issues are discussed.

The first classification of Member States focuses on growth rates in gross value added and employment during 2009 and 2012, year-on-year[53]. By doing this, the analysis can show how the performance of SMEs in the various countries has varied throughout the reference period, with significant year-on-year differences both in terms of added value and employment. This leads to a rather mixed picture of recent developments at the national level.

In 2008-2009, during the most difficult period of the crisis, the majority of EU SMEs posted sharp declines in value added and more moderate losses in employment, although country performance diverged (Figure 19).

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[50] Country-specific analysis can be found in the factsheets associated to the SMEs Performance Review Country-specific available at: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/index_en.htm.

[51] The groupings forming the clusters are based on the methodology proposed by the latest European Industrial Scoreboard 2013, European Commission (2013d).

[52] Correlation and regression analyses are usually carried out complementarily. Correlation is used to estimate the degree of association between growth in SME value added and employment with other structural and macroeconomic factors without any a-priori assumption to whether a variable is dependent on other variables or not – correlation tests for inter-dependence between variables -. Regression is then used in order to model the dependence of SME growth in value added and employment on a set of explanatory macroeconomic and structural variables and test to what extent changes in the explanatory variables correspond to changes in SME value added and employment growth (Weisberg, 2005).

[53] Countries in the quadrant **P-P** have experienced positive growth in both SME value added and employment; countries in the quadrant **P-N** have experienced negative growth in SME value added and positive growth in SME employment; countries in the quadrant **N-P** have experienced positive growth in SME value added and negative growth in SME employment; countries in the quadrant **N-N** have experienced negative growth in both SME value added and employment.

Figure 19: Performance of SMEs, value added and employment growth, 2008-2009
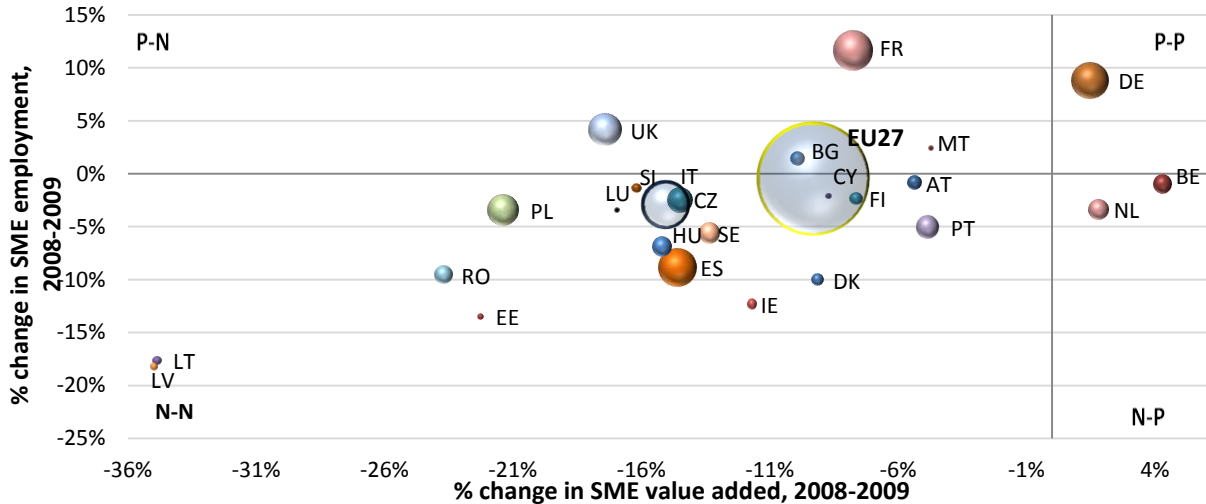
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

European SMEs lost altogether 9.3% of their value added and about 0.5% of their workforce. **In 2009, Germany was the only country where SME performance in terms of value added and employment was positive[54].**

The other countries where SMEs proved somewhat resilient during the downturn were Belgium and the Netherlands, in terms of value added and Bulgaria, France, Malta and the United Kingdom, in terms of number of persons employed. Whilst almost all countries experienced sharp declines in SME value added, a more detailed glance at employment trends reveals diverging country performances. SMEs in France, Germany and the UK, which together account for almost 40% of SME employment in the EU, have actually managed to add jobs, but with different performances in terms of value added.

Between 2009 and 2010, the SME sector bounced back with an overall 4.3% growth in the value added produced by European SMEs, while employment in SMEs stagnated (Figure 20).

Figure 20: Performance of SMEs, value added and employment growth, 2009 – 2010
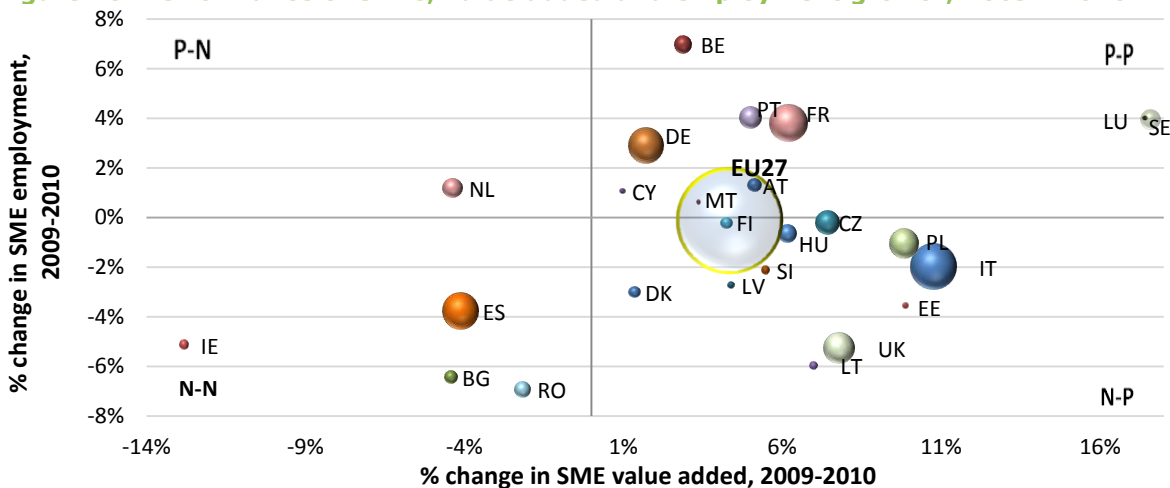
Note: The size of each country bubble represents total SME value added at factor cost in 2012 for all sectors for that country.
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

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[54] Overall the GDP in Germany, as in the rest of the Western world, declined. This is reflected in the data - the total value added dropped by 3.6%. However, this was mainly due to a loss in value added in large firms, which suffered a loss of almost 10%. In contrast German SMEs grew moderately (1.5%).

The countries with positive SME performance in both value added and employment in 2009-2012 included Austria, Belgium, Cyprus, Germany, France, Luxembourg, Malta, Portugal and Sweden[55]. Moreover, the majority of countries where both value added and employment had shown negative growth in 2009 had now registered a positive performance. The Netherlands, which showed positive growth in SME value added in 2009 but declining figures in SME employment, the next year recorded an inversion of the trend.

Between 2010 and 2011, value added growth levelled off at 2% for the EU's SME sector while employment again stagnated (Figure 21).

Figure 21: Performance of SMEs, value added and employment growth, 2010 - 2011
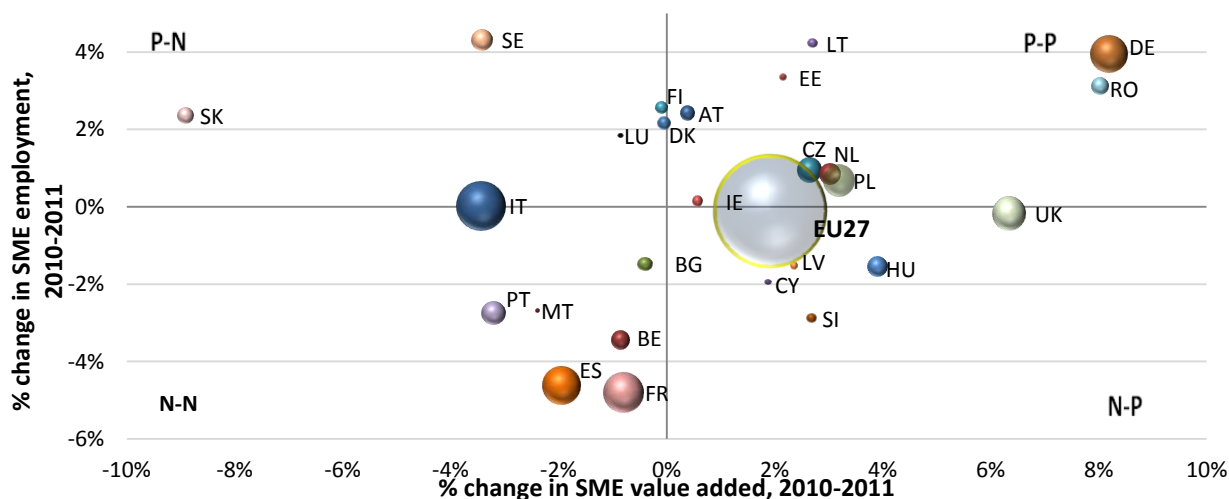
Note: The size of each country bubble represents total SME value added at factor cost in 2012 for all sectors for that country.
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

The composition of the group of countries exhibiting growth in SME value added and SME employment changed markedly. Positively performing countries on both indicators now included: Austria, Czech Republic, Germany, Estonia, Ireland, Lithuania, Netherlands, Poland and Romania.

Belgium, Cyprus, France and Portugal, which in 2010 recorded positive growth in both SME value added and employment, started to lose employment in 2011 and all but Cyprus also experienced a decrease in value added.

Amongst the larger countries, the United Kingdom, which suffered a severe loss in SME value added in 2009, recouped this loss in 2010 and 2011. However, in the same period, SME employment declined. Italy, which between 2008 and 2009 lost both SME value added and employment, recovered in terms of value added in 2010 but not in terms of SME employment. This trend only somewhat reversed the next year, with stagnant employment and lower value added.

The study reveals that progress has been made over the period 2009-2011 in terms of recouping the value added and employment lost during the 2008 recession; however, in 2012, there is still some ground to cover in order to reach pre-crisis levels, in particular because **in 2012, SMEs in the EU-27 saw their value added drop by 1.3% and their employment by 0.7% (Figure 22).**

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[55] Slovakia is excluded from the calculation because of a structural break in the series in 2010 when the Statistical Office of the Slovak Republic began to include solo-entrepreneurs in the SME category.

Figure 22: Performance of SMEs, value added and employment growth, 2011-2012

Note: The size of each country bubble represents total SME value added at factor cost in 2012 for all sectors for that country.
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

Among the larger economies, France, Italy and Spain recorded a drop in both SME value added and SME employment. The UK experienced a large drop in value added and a small increase in SME employment and in Germany SME valued added and employment only slightly increased from 2011 levels. Only Poland experienced more robust growth in SME value added and employment.

In contrast, the year 2012 was a turning point for some smaller countries such as Belgium, Estonia, Latvia and Malta which recorded growth in SME value added and created more SME jobs.

Other European Member States fared less well. For example, in Austria, Finland, Lithuania, Luxembourg, Slovakia and Sweden, SMEs experienced value added growth, but decline in employment. In Bulgaria, Ireland, the Netherlands, Romania and Portugal, both SME value added and SME employment declined while in Cyprus, Czech Republic, Denmark, Hungary and Slovenia SME value added declined while employment increased.

The performance dynamics of SMEs at country-level have been variable since the beginning of the recession. This is the result of the interplay of many factors including the countries' economic and institutional conditions, the differentiated effect of the crisis on the sectors and the sectoral compositions of countries' economies. In order to assess SME performance within a framework reflecting the structural characteristics of national economies, it is necessary to refine the analysis in the light of such structural diversity. The first step undertaken in the study of the performance of SMEs is to cluster the countries according to structural characteristics exerting particular influence on the SME performance in terms of value added and employment. In the Annex, a further clustering exercise is reported in order to shed some light on the difference in performance of the Eurozone in comparison with non-Eurozone countries.

3.1.   Cluster Dynamics: Growth, Job creation and Value Added

In this exercise, EU Member States are clustered into three categories using the country groupings adopted in the 2013 Industrial Performance Scoreboard[56]. The countries are grouped into 3 clusters according to their performance in ten important structural characteristics[57], namely: 1) manufacturing productivity; 2) educational attainment; 3) share of exports in GDP; 4) innovation performance proxied by the innovation index; 5) energy intensity; 6) business environment indicator; 7) electricity prices; 8) business satisfaction with infrastructure (rail, road, port and airport); 9) bank lending; and 10) business investment in equipment. The three clusters are the following:

- The *consistent cluster* which includes Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Luxembourg, Netherlands, Spain, Sweden and United Kingdom;

- The *moderate cluster* which includes Cyprus, Greece, Italy, Malta, Portugal and Slovenia; and

- The *catching-up cluster* which includes Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania and Slovakia.

The dynamics of the performance indicators in the three clusters has varied during the period under review.

SME employment indicators for the clusters are presented in Figure 23 and value added indicators are presented in Figure 24[58].

Figure 23: Clusters dynamics - SME employment, 2008-2012, 2008=100
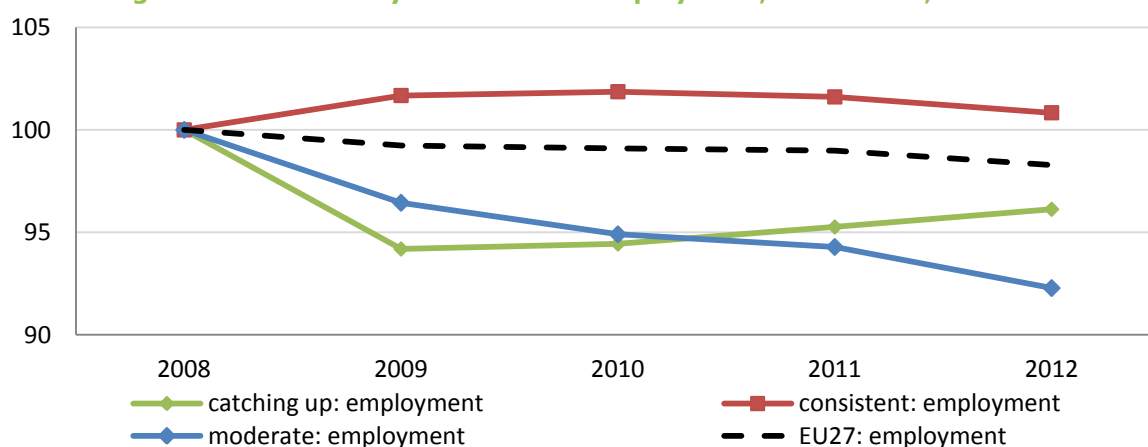
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

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[56] European Commission (2013d)
[57] The clusters identified in the 2013 edition (European Commission, 2013d) expanded on the five structural indicators used in 2012 using structural variables which are not limited to the manufacturing industry but to the overall business environment making therefore the clustering exercise applicable to the private, non financial business economy on the whole.
[58] A summary figure of all three core indicators is presented in the Annex.
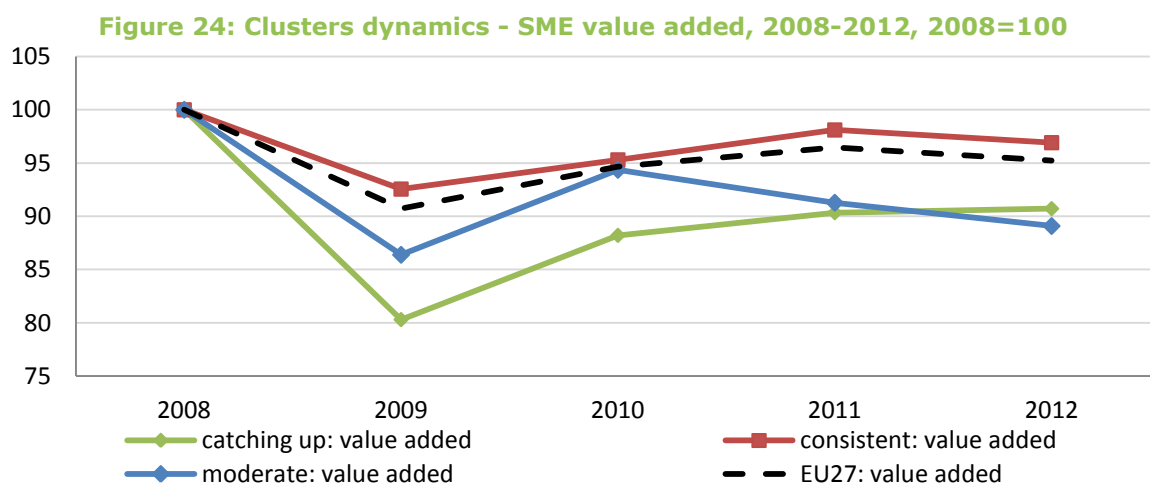
ANNUAL REPORT ON EUROPEAN SMEs 2012/2013

Figure 24: Clusters dynamics - SME value added, 2008-2012, 2008=100

Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

In 2012, in the consistent cluster, the indicators of the SME demography and SME employment were above 2008 levels whilst the level of value added was lower than in 2008.

- In 2012, the combined number of SMEs in Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Luxembourg, Netherlands, Sweden, Spain and the United Kingdom, i.e. the consistent cluster, was 1.5% higher than in 2008.

- Total SME employment in the consistent performers group rose during the period under consideration. In 2012, it was 1.3% higher than in 2008.

- In 2012, the aggregate value added produced by SMEs in the consistent performers group was approximately 3.1% lower than in 2008. After a 7.4% drop in 2009, value added was on the way to recovery, until 2012 when the trend reversed.

In 2012, in the moderate cluster all indicators were lower than in 2008.

- In 2012, the combined number of SMEs in Cyprus, Greece, Italy, Malta, Portugal and Slovenia, i.e. the moderate cluster, was 5.1% lower than in 2008. The trend in the number of SMEs in this cluster shows an almost steady decline during the whole reference period.

- In 2012, total SME employment in the moderate cluster was 7.4% lower than in 2008. This indicator has been on a downward trend since 2008 without showing any sign of recovery.

- In 2012, aggregate value added produced by SMEs in the moderate cluster was 10.9% down relative to 2008 levels. After a large drop in 2009, the valued added of this group rose sharply in 2010, and then set again on a negative trend in 2011 and 2012.

In 2012, employment and value added of SMEs in the catching-up cluster were below 2008 levels. The number of SMEs, however, grew.

- The combined number of SMEs in Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania and Slovakia, i.e. the catching-up cluster,

grew by 4.7% between 2008 and 2012. Following an initial decline in 2009, the trend in number of SMEs in the catching-up group was generally positive.

- In 2012, total SME employment in the catching-up cluster was 3.9% lower than in 2008. After a drop of 5.8% in 2009, employment set on a mildly positive trend until 2012.

- Finally, in 2012, aggregate value added produced by SMEs in the catching-up cluster was still 9.3% below its 2008 level. The drop in 2009 was almost 20%. The subsequent recovery, while uninterrupted from 2010 to 2012 was too weak to fully offset the previous decline.

Not all consistent performers performed positively during the crisis (Figure 25).

Only Germany, Belgium and Austria which are located in the upper right quadrant, posted positive growth rates for SME value added and employment in the period 2008-2012. Luxembourg experienced a small increase in SME employment and a small decrease in SME value added.

Figure 25: Value added and Employment by SMEs, "consistent performers" group, percentage change, 2008-2012
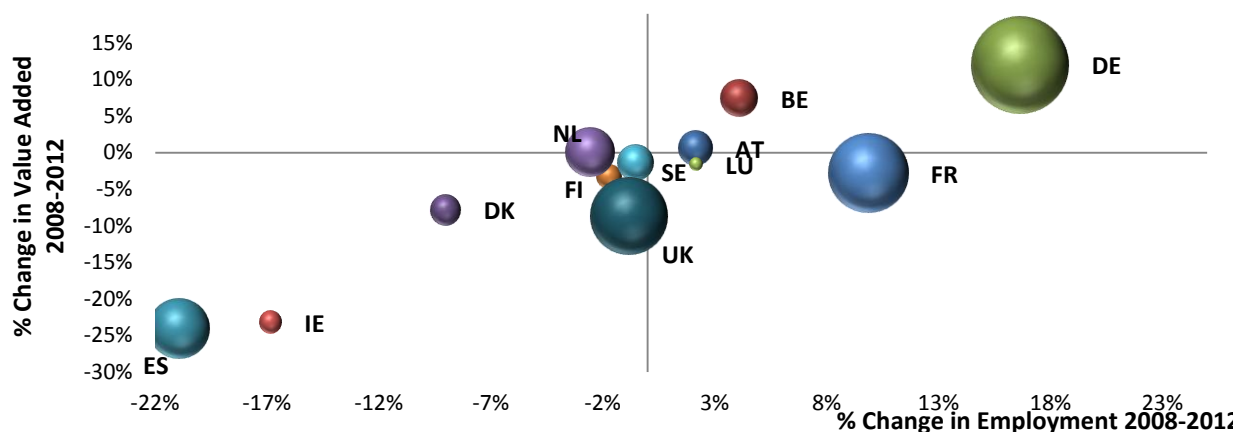
Note: The size of each country bubble represents total SME value added at factor cost in 2012 for all sectors for that country.
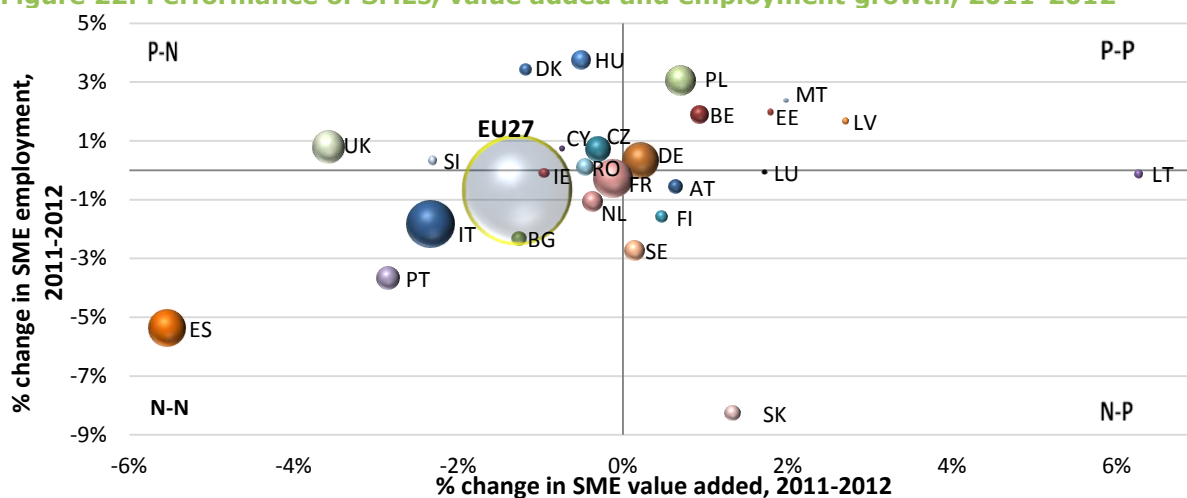*Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics*

Over the period 2008-2012, French SMEs, whilst posting a positive growth rate of employment of approximately 10%, experienced a drop in value added of almost 3%. The large growth in employment reflects a significant rise in solo-entrepreneurs since 2009, when a new business status became available to someone wishing to establish a small business in France[59].

Slightly more than half of the countries in the consistent performers group experienced a negative performance.

In the UK, Finland, Sweden, the Netherlands and Denmark the decline in SME value added and employment was limited to less than 10%.

In contrast, between 2008 and 2012, SME employment and value added in Ireland decreased by circa 17% and 23% respectively. Since the onset of the 2008 crisis, Ireland experienced the collapse of the property sector - prices of residential properties falling by 51 per cent from their peak in September 2007 -. The ripple effect was felt on the construction sector and, together with the crisis of banking sectors, the Irish

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[59] For more details, see Filatriau and Batto (2013, in French) and Crumley (2009).

economy entered a very deep recession in 2008. The repercussions are evident in the poor performance of the SMEs sector[60].

SME employment and value added in Spain declined by about 21% and 24% respectively. Spain is a country with many SMEs in low-tech industries and less knowledge intensive services relying mainly on the domestic market. Moreover, the burst of the housing market bubble and the subsequent austerity measures have plunged internal demand even further causing a significant decline of around 30% in value added and employment of manufacturing SMEs. Value added and employment by SMEs operating in the construction sector also declined by circa 50% between 2008 and 2012. Moreover, the upgrade to higher technology intensity industries and knowledge intensive services was hampered by excessive bureaucracy and other barriers to entry.

Over the period 2008-2012, SMEs in all the countries in the moderate cluster, except Malta, recorded negative growth rates in employment and value added (Figure 26).

Figure 26: Value added and Employment by SMEs, "moderate performers" group, percentage change, 2008-212
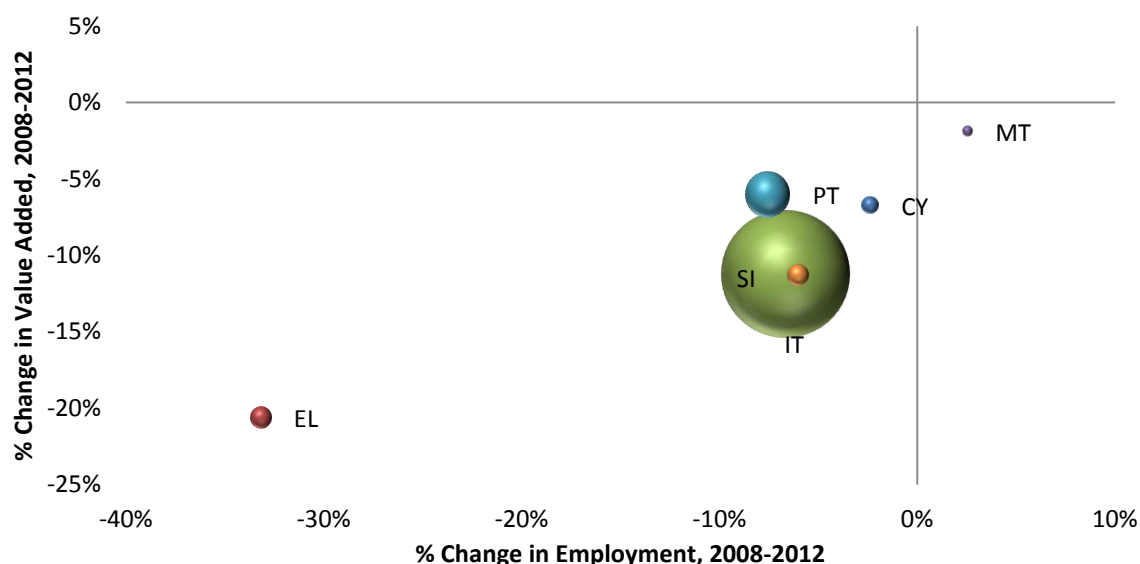
Note: The size of each country bubble represents total SME value added at factor cost in 2012 for all sectors for that country. SME employment and value added for Greece can be calculated only for limited sectors.
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

The Maltese economy was relatively unaffected by the crisis and grew consistently from 2009 to 2012. SMEs in Malta scored the best performance in this group. Nonetheless, between 2008 and 2012, SME value added declined by 1.9% and SME employment in Malta grew by 2.6%.

All the other countries, including Cyprus, Italy, Portugal and Slovenia posted declines in SME value added and employment of between 6% and 10% in the case of value added and between about 2.5% and 9% in the case of employment, with the exception of Greece.

The Greek case is rather exceptional as, between 2008 and 2012, Greek SME employment fell by 33% and Greek SME value added declined by almost 21%. The Greek SME sector comprises mostly micro-enterprises and after five consecutive years of

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[60] The assessment of the Irish economy is given by the Economic and Social research Institute, http://www.esri.ie/irish_economy/, see also O'Toole et al. 2013.

strong GDP decline and austerity measures in place, affecting both the private and the public sectors, the decline in demand is severe.

The performance of SMEs in the catching-up cluster is mixed as SME employment and value added is still lower in 2012 than in 2008, reflecting a steady, but weak, recovery in 2010, 2011 and 2012 following a sharp decline in 2009 (Figure 27).

Figure 27: Value added and Employment by SMEs, "catching-up" group, percentage change, 2008-2012
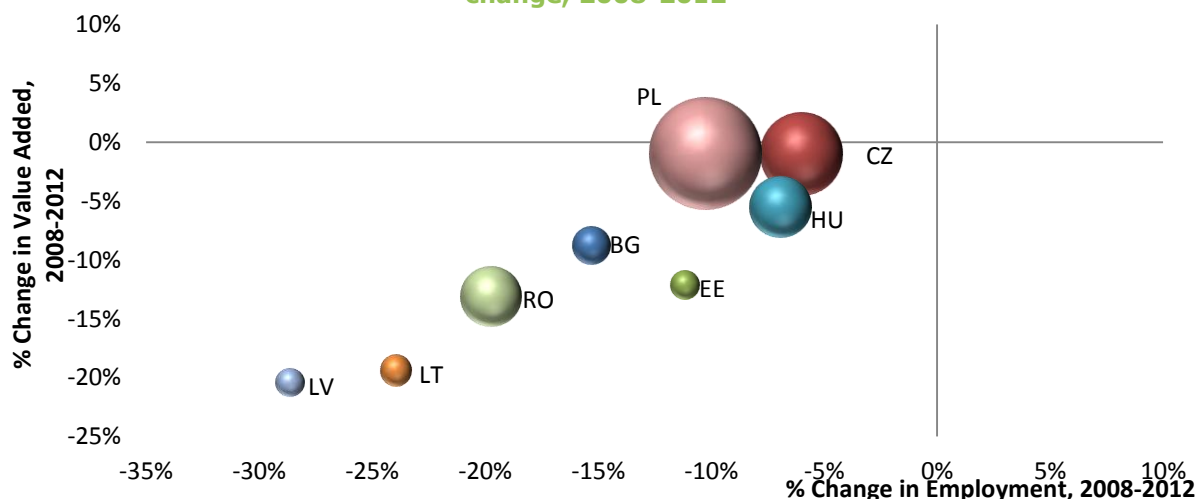
Notes: The size of each country bubble represents total SME value added at factor cost in 2012 for all sectors for that country. Slovakia is excluded from the figure because of a structural break in the employment data in 2010 when the Statistical Office of the Slovak Republic began to include solo-entrepreneurs in the SME category.
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

In this group, only in Hungary, the Czech Republic and Poland was the decline in employment and value added limited to less than 10% between 2008 and 2012. In the same period, Bulgaria posted a 9% decline in SME employment and a 15% decline in value added by SMEs. This is due to the high concentration of SMEs in the wholesale and retail trade sector as well as the bursting of a speculative bubble in the retail market, which interested the construction sectors, where many SMEs were active.

Latvia and Lithuania are outliers as they have experienced the most severe decline in SME employment and value added in the group. Both countries had experienced particularly high growth rates of GDP in the years preceding the crisis (in some cases experiencing double-digit growth) and the SME sector had performed particularly well especially in the size classes of small and medium sized businesses. The countries were undergoing radical structural upgrades when the crisis hit and the consequences have been rather severe: value added produced by Latvian SMEs declined by circa 30% whilst Lithuanian SME value added declined by over one third in only two years (2008 and 2009). The decline in SME employment in both countries has also been equally severe. The structural reforms initiated before the crisis hit have accompanied the recovery process in both countries especially in the manufacturing (Latvia) and the service sectors (Lithuania). The structural reforms primed the countries' gain of competitive advantages in more technology and knowledge intensive productions and in the second part of 2009 SME value added and employment began to grow again achieving considerable success also on foreign markets. Nonetheless, whilst the forecasts of GDP growth for 2013 and 2014 in both countries are expected to be above European average, Latvian and Lithuanian SMEs are still catching up in terms of value added and employment.

Despite the overall poor performance of almost all countries at the height of the recession, the SME sector of the **consistent cluster** held its ground better than the other groupings in terms of value added and in terms of employment. The reason for this better performance is based to some extent on the structural characteristics of these countries and on their capabilities in high-tech and medium-high-tech manufacturing and knowledge intensive services along with their business friendly economic environment.

The SMEs performance in the **moderate cluster** has been hard hit by the financial, economic and sovereign debt crisis, with the exception of Malta whose economy was relatively shielded from the crisis.

The performance of SMEs in the **catching-up cluster** has been characterised by the particularly negative initial conditions of the business environment led by problems of transparency and efficiency of public administrations, as well as poor transport, energy and ICT infrastructure. These severely affected the performance of SMEs especially during 2008 and 2009, where most of the catching-up countries experienced negative growth rates in SME employment and value added. However, catching-up countries set off on a process involving structural and institutional reforms aimed at strengthening their national innovation systems and stabilising their business environments. Progress has been recorded by the cluster overall since 2010. The performance of SMEs in catching up countries progressed at a faster pace compared to other groupings: they recovered half of the huge loss in value added by SMEs in one year, whilst SME employment continued on a mildly positive trend. Unfortunately, the post-2009 recovery was too weak until now (despite a strong rebound in 2010) to fully offset the sharp drop in SME value added and employment experienced in 2009.

As evidenced by the differences in performance of SMEs in clusters of countries with similar characteristics, structural factors are important in determining the performance of SMEs both in terms of value added and in employment. However, the cluster analysis also uncovered that more factors are at play. In the next section, the analysis extends towards factors such as long-term economic and social dynamics, policy regimes and structural adjustments that have contributed to the performance of SMEs, particularly related to the recovery period (2009-2011)[61].

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[61] Data availability has been a major constraint in the choice of the reference period to conduct such analysis, however, the period under consideration is particularly important for the understanding of the dynamic factors contributing to the performance of SMEs particularly after the crisis hit the European economy and certainly during the period of recovery.

3.2.   Macroeconomic, structural factors and demography:

Contributors to SME performance

The aim of this analysis is to focus in further on the enquiry into the factors affecting SME performance and to identify the main macroeconomic, structural and microeconomic contributors to SME value added and employment growth.

Macroeconomic factors constitute the overall economic climate that is crucial for the development of new small businesses. This includes, but it is not limited to, those aspects affecting directly and indirectly GDP and GDP growth, such as demand[62], and the links between EU Member States and non-EU economies. These factors are described by variables related to trade in goods and services, and to the capacity of national economies to invest for the future.

A further group of factors that affect SME performance is linked to the **structural characteristics of the economy**. These include the sectoral composition of the business economy (i.e. the knowledge and technology intensity of a country's industries and the distribution of enterprises by size-class), the degree to which national governments fund and promote science and technology, public and private expenditure on research and development and the investment, public and private, in innovation activities.

Finally, **a set of microeconomic factors is identified.** One of these factors is business demography, the permanent process of entry of new businesses and market exit of existing ones. This process is inherently complex as many aspects of the economy and the social structure of a country are called into play.

   Macroeconomic and structural factors affecting growth in SME value added and employment: an empirical investigation

Two complementary statistical analyses were carried out: 3.2.1) a correlation analysis[63], in order to assess the degree of association between growth in SME value added and

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[62] Total demand includes domestic demand and external demand. Domestic demand (i.e. the demand for goods and services within the national borders) can be classified as public demand, that exerted by the public sector through direct government expenditure on goods and services, public procurement, etc. and private demand, i.e. the demand for goods and services, excluding intermediate goods and services, by the private sector and households; external demand is the demand for goods and services by overseas economies in particular the net external demand can be summarised by the exports.

[63] The choice of the variables used in correlation analysis is based on the findings of the literature review, informing on which macroeconomic and structural factors affects SME performance. Paired correlations calculated with **growth in SME real value added (2009 – 2011)** include the following **macroeconomic and trade variables**: 1) change in businesses' investment behaviour pre and post crisis; 2) change in private household demand; 3) change in the final consumption of government pre-and post crisis 4) use of state aid to the financial sector; 5) intra EU trade and 6) lending intensity in the economy and the following **structural variables**: 1) change in value added by large enterprises during the period 2009-2011; 2) share of the knowledge intensive services value added over the total services value added (pre-crisis level 2008); Total R&D spending of the economy (GERD) 2009-2011; 3) Total Business R&D spending of the economy (BERD) 2009-2011 and 4) Innovation Intensity – economy-wide innovation expenditure as a percentage of GDP in 2010 and 5) Infrastructure Index (pre-crisis level, 2008). Paired correlations calculated with **SME employment growth (2009-2011)** include the following **macroeconomic and trade variables**: 1) change in businesses' investment behaviour pre and post crisis; 2) change in final consumption expenditure of households 2009- 2011; 3) public expenditure on labour market policies (2009-2011); 4)Change in Labour cost index – other than wages and salaries 2009-2011; 5) Burden of government index (2008); 6) intra EU trade 2009-2011; 7) lending intensity - Net lending over GDP 2009-2011 and **structural variables**: 1) change in the SME value added at constant prices (2009-2011); 2) Share of medium-low and low-tech manufacturing value added by SMEs over total value added by manufacturing SME (2009-2011); 3) share of employees with secondary and upper secondary education attainments in vocation and advanced technical training (change 2009–2011); 4) Total R&D spending of the economy (GERD) 2009-2011; 5)Total Business R&D spending of the

employment with other macroeconomic and structural factors and 3.2.2) a regression analysis[64], in order to assess the degree of dependence of growth in SME value added and employment and a set of explanatory macroeconomic and structural factors and test their relative importance in determining growth in SME value added and employment. The regression analysis consists in two cross-section multivariate regression models conducted on SME real value added growth and SME employment growth.

The two indicators for the performance of the SME sector were:

3.2.2. a)   Growth in real value added generated by SMEs from 2009 to 2011[65]

3.2.2. b)   Growth in employment by SMEs from 2009 to 2011.

The indicators of SME value added and employment growth are expected to be highly correlated to one another. The correlation, however, is not perfect (correlation = 0.44), meaning that **different macroeconomic and structural variables affected SME value added growth and SME employment growth differently**.

3.2.1 The correlation analysis between growth in value added (at constant prices) generated by SMEs during 2009- 2011 and macroeconomic variables showed a definite association between percentage change in SME value added with demand and credit indicators. The links between various components of the demand - including demand for investments and for final household consumptions[66] - and SME value added growth were, in fact, positive indicating a **clear positive relationship between growth of investments and consumption and SME value added growth.**

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economy (BERD) 2009-2011; 6) Innovation intensity - economy-wide innovation expenditure as a share of GDP, 2010; 7) Infrastructure Index (pre-crisis level, 2008) and 8) Institutions Index (pre-crisis level, 2008). EUROSTAT (http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/search_database) served as the data source for calculating the indicators used in the paired correlation exercise and multivariate regression models, unless otherwise specified. Details of the correlation analysis are presented in two tables available in the Annex. The paired correlations have been calculated for the EU-27 Member States with the exception of Greece, because of incomplete data, and Slovakia, because of a structural break in the data series.

[64] The choice of the explanatory variables used in the regression analyses is based on the findings of the literature review, informing on the causal relationships between SME performance and macroeconomic and structural factors affect SME performance, and the correlation analysis, suggesting the degree of association between SME performance indicators and the variable under scrutiny. However, correlation among explanatory variables produces biased estimate (multicollinearity), to control for the effect of multicollinearity, macroeconomic and structural factors that exhibited high cross-correlation have been excluded from the regression using the test of Variance Inflation Factor (VIF); see Weisberg (2005). Details of the regression analyses are presented in the Annex A I.6. Also in this case, the models have been estimated using data of EU-27 Member States except Greece (because of incomplete data) and Slovakia (because of a structural break in the data.

[65] In the remainder analysis SME real value added has been preferred to SME nominal value added as indicator of the performance of SMEs. The reason behind this choice is given by the definition of the variable: real value added is in fact the measure of the product of SMEs at constant prices, i.e. net of the effects of inflation that have affected European countries in a non homogeneous way since the beginning of the crisis. In order to discount the effect of the inflation and concentrate only on the real SME production, constant 2005 prices have been chosen to evaluate real value added measures.

[66] The two variables are defined as follows: change in **gross fixed capital formation** represent the businesses' investments in durable assets. It consists of businesses' acquisitions, less disposals, of fixed assets. Fixed assets are tangible or intangible assets produced as outputs from processes of production that are themselves used repeatedly, or continuously, in processes of production for more than one year. Disposals of fixed assets are treated as negative acquisitions. The behavioural change of business investments has been considered for the period preceding (2005-2008) and following (2009-2011) the financial crisis. **Household consumptions** represent the private demand of the economy, it excludes expenditure by businesses and includes expenditure by individuals or groups of individuals as consumers and the expenditure of individuals or groups of individuals as producers of goods or non-financial services for exclusively own final use household sector (ESA95, 2.75). In this variable is also included the consumption of non-profit institutions serving households (NPISH, ESA95, 3.78 and 2.87) which are separate legal entities serving households. They include for example trade unions, professional societies, political parties, churches, charities, sports clubs etc. The definition   of   both   variables   is   available   at: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/nama_esms.htm.

The intra-EU trade during 2009-2011, in terms of import and export[67], was also positively correlated with SME value added growth. This relation indicates that **the performance of the Common Market and that of SMEs, in terms of value added growth, were linked and mutually beneficial.**

Between 2009 and 2011, the association between the intensity of lending in the economy (net lending[68] as a share of GDP) and SME value added growth was positive and particularly significant. This implies that **credit availability within the European economies and SME value added growth followed similar trends during the period under analysis.** The strength of the relationship points at the importance of financing as a significant component of the performance of SMEs.

Correlations between SME value added growth and structural indicators especially those related to Research and Development expenditure[69] were also positive. The link between SME value added growth and total R&D spending in the economy was stronger than that with total business R&D spending. Not surprisingly, **SMEs are not as engaged in R&D compared to large enterprises, however, a generally high level of systemic R&D spending by universities, government research centres and enterprises in the economy favour SMEs performance via the spillover effect[70].**

The correlation analysis between growth in employment by SMEs from 2009 to 2011 and macroeconomic variables showed a positive association between SME employment and demand indicators. The most significant indicator in this relation was with investments in gross capital formation. **A largely positive correlation coefficient indicates that SMEs performance in terms of employment growth is particularly linked with investments in new operating capital** implying great degrees of complementarities between capital and labour in SMEs[71].

As in the case of SME value added growth, **the relationship between household consumption and SME employment growth was positive, yet it was rather tenuous,** indicating that within certain thresholds, temporary expansion in demand and consequently of business operations, might be compensated by extra effort by the owner and his/her immediate collaborators delaying recruitment until it becomes unavoidable. Vice versa, in case of a drop in demand, SMEs will not be able to promptly reduce employment because the reduction of an already small workforce might bring business

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[67] Intra-EU trade statistics cover the trading of goods between Member States. Goods comprise all movable property including electricity, definition available at: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/ext_esms.htm.

[68] Net lending (borrowing) of the total economy represents the net resources that the total economy makes available (if positive) - ESA95, 8.98. The variable "**lending intensity**" has been calculated as net lending as a percentage of the GDP. Definition can be found at: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/nama_esms.htm

[69] Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society and the use of this stock of knowledge to devise new applications." (§ 57, Frascati Manual, OECD 2002) **Gross domestic expenditure on R&D (GERD)** is consequently composed of: **Business enterprise expenditure on R&D (BERD)**, Higher Education expenditure on R&D (HERD), Government expenditure on R&D (GOVERD) and Private Non-profit expenditure on R&D (PNPRD).

[70] There is a vast literature exploring the R&D spillover effects. For a recent review of the issues, see: Ortega-Argilés et al. (2009) and Cincera (2012).

[71] The relationship between investments in new operating capital and employment dynamics has traditionally been thought to be negative: investment in new capital offsets labour. Recent studies confirm that it is indeed so in traditional sectors characterised by process innovation (productivity driven by the upgrading the stock capital to which follows a reduction of the labour force). The relationship is reversed in those industries characterised by high-level of technological capital and product innovation. In these sectors, investments in fixed capital are conducive of increase in employment. See Pianta, (2005). An account of the phenomenon in the high-tech manufacturing SMEs in Europe is given by Gagliardi et al. (2013).

operations to a halt. SMEs are also comprised predominantly of solo-entrepreneurs and family-run businesses whereby there is some flexibility in terms of wages and other personnel costs that might be delayed or suspended. It is also found that there was a **low but negative correlation between SME employment growth and labour costs other than wages and salaries[72].**

Not surprisingly, the **availability of finances**, here also defined as lending intensity, **was positively linked with SME employment growth.** SMEs rely mostly on their own capital and credit for investments; hence recruitment decisions are often taken into consideration together within expansion plans.

The association between SME employment growth and structural variables is somewhat more prominent than that of structural variables and SME value added growth. In general, the presence of quality infrastructure and well functioning institutions[73] is a determinant for economic growth and certainly for the growth of small firms. In particular, in the period under consideration, **SME employment growth was associated with the presence of higher quality infrastructure (correlation = 0.5) and well performing institutions (correlation = 0.3).**

Correlation between SME employment growth and Research and Development indicators was positive and relatively high. Again, given the return to research and development and the strong spillover effects, it is not surprisingly that, between 2009 and 2011, SME employment growth was linked with total R&D performed by public organisations, including government research centres and universities, and businesses.

While the correlation analysis has uncovered links between the performance of SMEs in terms of value added and employment growth, the next step aims to explain the growth of SME real value added and employment by means of a set of explanatory variables[74].

3.2.2.a The first regression model focuses on the growth in real value added generated by SMEs during the period 2009-2011 considering two groups of explanatory variables: macroeconomic and structural. Macroeconomic variables include: 1) Cumulative used state aid to financial sector (2008-2011) and 2) Change in final consumption expenditure of general government as share of GDP between 2005-2008 and 2009-2011. Structural variables comprise: 1) Percentage change in real value added of large enterprises (2009-2011); 2) Share of knowledge intensive value added over

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[72] **Labour costs – other than wages and salaries** comprise "employers' social security contributions plus taxes paid minus subsidies received by the employer. The choice of this variable was determined by the objective of looking at the economic effect of changes in the SME employment costs not associated with labour productivity, salaries and wages are in fact somewhat linked to labour productivity. The definition of the variable can be found at: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/lc_lci_lev_esms.htm.

[73] **The Infrastructure index** is built by averaging out indicators of: 1) Quality of overall infrastructure; 2) Quality of roads; 3) Quality of railroad infrastructure; 4) Quality of port infrastructure; 5) Quality of air transport infrastructure; 6) Available airline seat km/week (millions); 7) Quality of electricity supply; 8) Mobile telephone subscriptions/100 pop.; 9) Fixed telephone lines/100 population. **The Institutions index** is built by averaging out indicators of: 1) Property rights; 2) Intellectual property protection; 3) Diversion of public funds; 4) Public trust in politicians; 5) Irregular payments and bribes; 6) Judicial independence; 7) Favouritism in decisions of government officials; 8) Wastefulness of government spending; 9) Burden of government regulation; 10) Efficiency of legal framework in settling disputes; 11) Efficiency of legal framework in challenging regulations; 12) Transparency of government policymaking; 13) Business costs of terrorism; 14) Business costs of crime and violence; 15) Organized crime; 16) Reliability of police services; 17) Ethical behaviour of firms; 18) Strength of auditing and reporting standards; 19) Efficacy of corporate boards; 20) Protection of minority shareholders' interests; 21) Strength of investor protection, 0–10 (best).

[74] The analysis has been enriched with examples of policies implemented in order to tackle or improve SME value added in selected EU Member States, where appropriate. Of course, more details are available from the relative country factsheet available at: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/index_en.htm

services value added (2008) and 3) Innovation intensity - economy-wide innovation expenditure as a share of GDP (2010).

The model explains approximately 67% of the variation of SME value added growth in real terms from 2009 to 2011 across 25 EU Member States[75]. The remaining 33% of the variation is explained by exogenous variables not included in this exercise because their individual relative contribution is marginal. Figure 28 shows the standardised (beta) coefficients[76] representing the relative importance of the different explanatory variables.

Figure 28: Standardised (beta) coefficients for SME real value added growth (2009-2011)
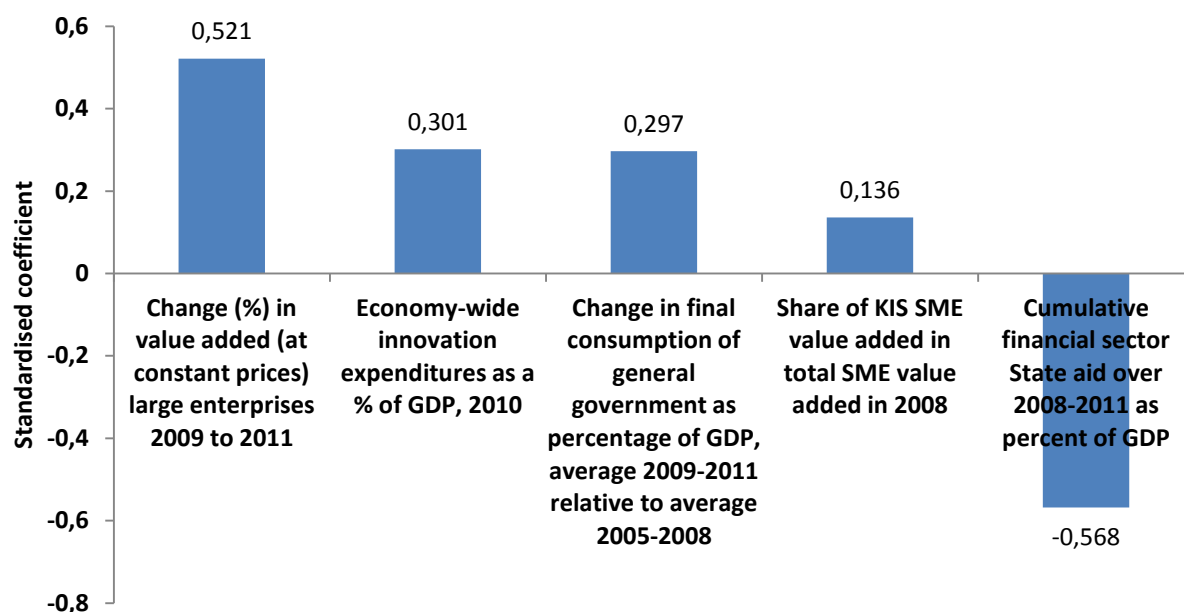
The effect of macroeconomic factors on SME value added growth:

- **There is a strong negative relationship between the development of value added in the SME sector and the cumulative amount of State aid given to the financial sector between 2008 and 2011.**

The cumulative amount of State aid given to the financial sector comprises the used amount of aid granted to the financial sector for recapitalisation, for impaired asset relief, for guarantees and for liquidity support. This measure is used a proxy for the severity of the financial crisis: countries that have experienced the effects of the financial crisis more severely and whose financial and banking systems have been in need of subsequent important bailouts. The finding of the regression model highlights how countries that have experienced the hardship of the financial crisis more severely are also those that have experienced slower growth in the real value added produced by SMEs compared to countries whose financial and banking system withstood the crisis relatively better. In other words, the effect of the financial and banking sectors crisis have spilt over to the real economy through an increase in policy uncertainty as well as

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[75] Greece has been excluded from the list because of incomplete data and Slovakia has been excluded because of a structural break in the data in 2010.
[76] It is common practice to use standardised (beta) coefficients in multiple regression analyses when assessing the relative importance of the explanatory variables on the dependent variable as this avoids bias and misinterpretations due to the different units of measurement of different variables. Un-standardised coefficients are reported in Annex A I.6.

through credit rationing and reduced availability of investment finances as evidenced by the finance and credit indicators in countries particularly affected by the banking crisis such as Greece, Spain, and Ireland[77].

To improve access to finance for SMEs, many Member States are currently developing alternative sources of financing of the economy less dependent on bank financing. For example, the German Federal Government has adopted the second and the third Financial Market Stabilisation Act to avert threats to the financial system. This extends the option for granting refinancing guarantees and direct capital aid to banks, for example, through to the end of 2014. At the same time, the Special Fund for the Stabilisation of Financial Markets has been closely integrated with the restructuring fund in order to relieve the burden on taxpayers. The Estonian government is supporting company financing through the KredEx[78], Enterprise Estonia and the Estonian Development Fund. Poland has created a new SME guarantee fund and created a new growth fund of funds with the European Investment Fund and BGK (Poland's development bank) to stimulate investment in venture capital, private equity and mezzanine funds[79].

- **A decrease in government spending is associated with lower growth in SME value added**[80];

In those countries where the contraction of public demand has been stronger, SMEs have performed relatively worse compared to countries where the contraction of public demand has been less significant. This shows the important role of internal demand for the performance of SMEs. Public demand constitutes a substantial share of the internal demand, which is a main outlet for SMEs that have less internationalisation capability compared to large enterprises.

In addition to the links between the macro-economic environment and SME performance, there are two structural variables that have a positive effect.

The effects of structural factors on SME value added growth:

- **A stronger growth in the value added of large enterprises**[81] **is associated with a higher growth in the value added of SMEs over the same period**.

This result underlines the importance of the business environment in a modern economy where high performance of large businesses is associated with a corresponding high performance of the SME sector. In particular, the standardised (beta) coefficient highlights how this relationship is particularly strong and the performance of the two enterprise size classes is interlinked. It is the case in general terms that the economic performance of large firms impacts SMEs through two main channels: 1) the business

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[77] In Denmark, the financial sector used circa €600billion of state aid between 2008 and 2012, most of the aid has been used as guarantees; nonetheless this is the highest amount of state aid to the financial sector approved in percentage of 2011 GDP (256%) in the European Union except from Greece (365%). Country-specific factsheets report over financing and credit conditions; details can be found at: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/index_en.htm

[78] KredEx is a financing institution helping Estonian enterprises develop quicker and expand more safely to foreign markets, offering loans, credit insurance and guarantees with state guarantee.

[79] Moving Europe Beyond the Crisis, European Commission, 2013

[80] Final consumption – expenditure of general government includes the total spending made by all non-producing governmental organisations within a country. It includes expenditure for the provision of services as well as public R&D expenditure and expenditure for infrastructures amongst others. This variable captures the change of public demand by the National governments comparing the final consumption of governments before (2005-2008) and after the financial crisis (2009-2011). A precise definition of the variable can be found here: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/gov_a_exp_esms.htm.

[81] Percentage change in real value added of large enterprises in the period 2009 to 2011.

relationships between large firms and SMEs acting as subcontractors and 2) the fallout of large firms' performance is generally on a larger scale in terms of employment and income generation and this spills over into the business environment in which both large and SMEs operate. Both effects are extremely evident in local economies characterised by the co-location of large businesses and SMEs. In many sectors such as the automotive, textile and telecommunication sectors, the performance of SMEs is also linked to that of large firms through a dense network of subcontracting activities[82].

- **There is a strong positive relationship between the share of economy-wide innovation expenditure[83] as a share of GDP in the year 2010 and the growth of real value added by SMEs.**

This result confirms the importance of innovation and knowledge as a key driver of economic development – not only for SMEs.

- **The share of value added by knowledge intensive SMEs over services value added is positively related to the performance of the SME sector[84].**

A vast body of literature[85] has identified a strong link between Knowledge Intensive Services (KIS)[86] and the chances to develop a Knowledge Based Economy. Knowledge Intensive Services are identified as enterprises whose activity is to provide knowledge and skills input to other organisations' business processes; KIS enterprises are predominantly SMEs[87]. As such, KIS play a crucial role as producers and providers of new knowledge. Their activity enhances innovation processes beyond the boundaries of the services industry especially in manufacturing. In this respect, KIS are starting to be seen as a multiplier of economic growth. The Innovation Union Scoreboard 2013 points

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[82] The literature on these topics is vast and spans several decades, recent reviews of the dynamics and implication of agglomeration economies are however available: Howells and Bessant (2012) and Ottaviano (2010).

[83] Innovation expenditure is a more general measure than expenditure on R&D as it includes as well as R&D expenditure, the costs of those activities undertaken to bring an innovation to market. The data used in this exercise regards innovation expenditure in 2010, the median point of the recovery period under scrutiny. The data has been sourced from the periodic Community Innovation Survey (2010) which is the latest available at the time of writing. 2008 data have not been used as many countries have not provided time-consistent indicators.

[84] Average values for 2008.

[85] Issues relating to Knowledge intensive services, productivity and innovation can be found in Miles (2008), Castaldi (2009), Doloreux and Shearmur (2012).

[86] The group of Knowledge intensive services is classified according to EUROSTAT (2011) as: **High tech services**: J59, Motion picture, video and television programme production, sound recording and music publishing activities, J60, Programming and broadcasting services, J61, Telecommunications,J62, Computer programming, consultancy and related activities, J63, Information service activities, M72, Scientific research and development; **Market services**: H50 water transport, H51 Air transport, M69, legal and accounting activities, M70, Activities of head offices, management consultancy activities, M71, Architectural and engineering activities; technical testing and analysis, M73, Advertising and market research M74, Other professional, scientific and professional services N78, Employment activities N80, Security and investigation activities; **Other KIS**:J58, Publishing activities, M75 Veterinary activities. The remaining sectors are part of the **Less Knowledge Intensive Services** and are allocated as follows: G45, Wholesale and retail trade and repair of motor vehicles and motorcycles, G46, Wholesale trade except of motor vehicles and motorcycles,G47, Retail trade, except of motor vehicles and motorcycle, H49, Land transport and transport via pipelines, H52, Warehousing and support activities for transportation,I55, Accommodation,I56, Food and beverage service activities,L68, Real estate activities,N77, Rental and leasing activities,N79, Travel agency, tour operator reservation service N81, Services to buildings and landscape activities and N82, Office administrative, office support and other business support activities; **Other Less KIS**: H53, Postal and courier activities. http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/htec_esms_an3.pdf.

[87] In both academic and empirical literature, Knowledge Intensive Services tends to consider mainly the Knowledge Intensive Business Services (KIBS) referring to High Knowledge Intensive Services and Knowledge Intensive Market Services.

out that the EU innovation **performance between 2006 and 2010 was driven mostly by innovative SMEs collaborating with others[88].**

3.2.2.b The second model investigates the factors affecting growth of employment in SMEs during the post-2009 recovery period. In this case, two groups of explanatory variables are also considered: macroeconomic and structural. Macroeconomic variables include: 1) Public Expenditure on labour market policies (2009-2011); 2) Percentage change in gross fixed capital formation (average 2009/2011-2005/2008); and 3) Burden of government index (2008). Structural variables comprise: 1) Share of employees with secondary and upper secondary education attainments in vocation and advanced technical training (change 2009–2011); 2) Percentage change in the SME value added at constant prices (2009-2011); 3) Innovation intensity - economy-wide innovation expenditure as a share of GDP (2010); and 4) Share of medium low and low-tech manufacturing value added over total manufacturing (2009-2011).

This model explains approximately 71% of the variation in employment by SMEs in the period under consideration. The remaining 29% of the variation is explained by exogenous variables not included in this exercise because their individual relative contribution is marginal.

The results for SME employment growth in 2009 - 2011 in terms of the standardised (beta) coefficients that represent the relative importance of the different explanatory variables are presented in Figure 29.

Figure 29: Standardised (beta) coefficients for SME employment 2009-2011
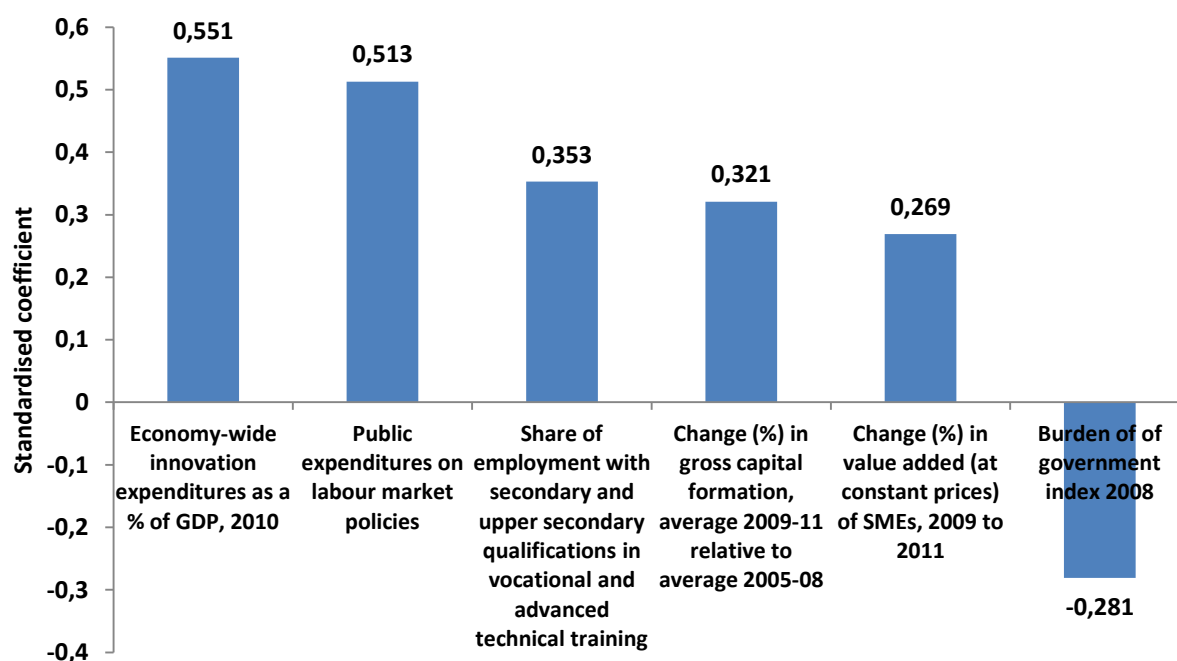
The effects of macroeconomic factors on SME employment growth:

- **In the European Union, the relation between investments in physical capital[89] and employment by SMEs is strongly positive.**

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[88] Further details on the dynamics of the service sectors classified according to the knowledge content of the services provided is developed in Annex A I.1 and in the knowledge intensive services brief by Marzocchi, Ramlogan and Gagliardi (2013) available on the SBA website.

The implications of the fact that the trend in gross capital accumulation is positively linked with SME employment are twofold. On the one hand, it means that investments in physical capital are complementary with the job creation process and on the other hand, the general level of skills and competences in operation is on average high enough to enhance this relationship.

- **Member States that spent more on labour market policies as a percentage of GDP**[90] **experienced higher growth in SME employment**.

Countries that spend more of their GDP on labour market issues are also those countries that achieve better results in SME employment. For example, Belgium introduced measures to decrease the social contributions for SMEs and for certain categories of employees. A "work bonus" for the low-paid has been introduced and reinforced by reducing employers' social contributions, coupled with a personal income tax credit. Hungary has reduced social security contributions for selected target groups. Finland has increased basic allowances to ease taxation on low income earners. Estonia planned overall reductions of the tax burden on labour[91].

The effects of structural factors on SME employment growth[92]**:**

- **There is a pronounced positive relationship between the share of innovation expenditure of GDP** (in the year 2010) **and SME employment growth.**

The positive effect of innovation expenditure on employment change in the SME sector is as important as the effect of investments in physical capital in the same period and **highlights the importance of innovation for job creation**. Many governments across the EU implemented initiatives related to the development of SME competences in the research and innovation field during 2012. For example, the German "Central Innovation Programme SME" (The ZIM programme), already implemented in 2008, was further adapted in 2012 in order to help even more SMEs engage in R&D and to develop the skills required by the market. The eligibility was extended to enterprises with up to 500 employees until the end of 2013 and there is also an increased funding rate for international R&D cooperation.

- **The relationship between the share of value added generated by medium-low and low-tech manufacturing SMEs over the total value added generated by SMEs in the manufacturing sector and SME employment is positive.**

The estimated coefficient of this variable is positive. This is not surprising as medium-low and low-tech manufacturing SMEs are generally labour intensive. With the average

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[89] This variable is the percentage change in gross fixed capital formation pre (average 2005-2008) and post (average 2009-2011) the financial crisis. Investment into physical capital is important because it concerns the renewal and the accumulation of a factor of production that under certain conditions is complementary with labour.

[90] This indicator summarises the intensity of public intervention in the labour market during the recovery from the crisis. It represents a complete indicator of the various activities that national governments undertake in this domain as it includes government actions to help and support the unemployed and other disadvantaged groups in the transition from unemployment or inactivity to work. The intensity is measured of the total annual expenditure in the period 2009-2011 as a percentage of the countries' GDP. Details on how the indicator is calculated can be found at: http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/EN/lmp_esms.htm.

[91] Moving Europe Beyond the Crisis, European Commission, 2013

[92] It is worth noting that, there is a negative relationship between SME employment share in 2008 and SME employment growth over the period 2009-2011. This may indicate that SMEs in countries where a large share of total employment is in SMEs may have been more vulnerable to the financial and economic shocks than countries where the SME sector is relatively small. This finding also underlines the importance of class size composition and the connectedness between SMEs and large enterprises highlighted above.

increase in productivity relatively stable, growth in value added has resulted in increasing employment[93].

- **There is a pronounced positive relationship between the growth in the share of the labour force with a secondary and upper secondary qualification in vocational and advanced technical knowledge and employment growth in the SME sector**[94], indicating the importance of such medium-high level of skills for SMEs. Several Member States have initiated reforms of their vocational education and training systems to adapt the skills and competences of young people to labour market needs, which may have potentially contributed to skills developments in the labour force. Latvia and Poland have established the bases for **high quality apprenticeships and dual vocational training**, although the process is still in the initial phases and will need close involvement of social partners in order to be successful. Austria and Poland have initiated reforms to increase the efficiency of their higher education systems to reduce drop-outs and to adapt them to labour market needs. Finland has launched a guarantee offering each young person under 25 (under 30 for recent graduates) a job, a traineeship, on-the-job training, a study place, or a period in a workshop or rehabilitation within 3 months of becoming unemployed[95].

- **Finally, economies characterised by a less business friendly environment** as indicated by the burden of government index in 2008[96] **experienced slower growth in SME employment**.

Improving the business environment is a priority for many Member States. Regulations prescribing company form or requiring capital ownership have been made less stringent in Poland and Germany. Malta has also abolished compulsory tariffs for regulated professions, allowing businesses to set their own prices. The Hungarian government introduced amendments to the Act on General rules of administrative proceedings and services. These new resolutions have all been designed to substantially reduce the administrative burden and fees for small companies. On average across the EU, fees for registering a business have been brought down to €17 and it takes two days to set up a private limited company[97].

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[93] The correlation between employment growth and high-tech manufacturing SMEs is uncertain and time-dependant as enterprises in these sectors are very capital-intensive (implying negative correlation) but tend to grow relatively faster in the appropriate framework conditions (implying positive correlation).

[94] The variable: share of the labour force with a secondary and upper secondary qualification in vocational and advanced technical knowledge is defined as "percentage of employees with education attainment isced97_3_4" (change 2009–2011). The ISCED97 classification considers the stage 3 and 4 of education attainments as secondary and post secondary but not tertiary (i.e. not at a university – undergraduate level or above). The stage 3 corresponds to secondary vocational and technical training while stage 4 corresponds to vocational and advanced technical training.

[95] Moving Europe Beyond the Crisis, European Commission, 2013

[96] This indicator is sourced from the World Economic Forum – Global Competitiveness Report 2012-2013. There are many indicators of "burden of government" and all measure the burden posed by the government on entrepreneurs trying to set up a business by means of strongly correlated indicators including time to set up a business or the cost of doing so, the number of bureaucratic passages from first contact to completion etc. The various indicators published by different sources are highly correlated. The report prefers to use this indicator as it is based on repeated country-wide surveys and reflects the opinion of the entrepreneurs that have actually embarked in new business creation or in carrying out business activities. It is a scale indicator regarding the difficulties of business to operate in a particular country. It summarises the burden placed on the entrepreneurs in complying with governmental administrative requirements including permits, regulations and reporting.
The report is available at: http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/

[97] Moving Europe Beyond the Crisis, European Commission, 2013

SME demography: determinants and implications

In this section, the report investigates the importance of microeconomic factors on SME performance with a particular focus on business demography. **Business demography is the fundamental micro-level factor concerned with the development of the SME sector, the emergence of new firms, their survival and growth, or their exit from the market**[98]**.** Since nearly all new firms start from a very small size – often just the founder with no dependent employees – new business formation directly contributes to the SME sector. Moreover, the great majority of new businesses stay micro-businesses for the whole period of their existence. Only very few exceptional start-ups become larger firms[99].

Being and staying small in size does not, however, mean that these firms are unimportant for macroeconomic growth. Due to their large numbers they provided more than 66% of the total jobs in the EU in 2012. New businesses can also generate important impulses for economic growth and the SME sector has to be regarded as a particular seedbed for further start-ups and for a culture of entrepreneurship. Thus, **solo-enterprises** that are established because the owner does not see any other plausible employment opportunity for her/himself (necessity entrepreneurship) can make an important contribution to development[100]. **Solo-entrepreneurs are particularly concentrated in industries characterised by low entry barriers and low minimum efficient size such as a large part of the service sector.** Hence, there is a strong relationship between new business formation, sector structure and the size and the development of the SME sector.

There are significant differences in the level of new business formation and the development of new firms between EU countries that shape the development of the SME sector. In 2010, the share of newly established businesses amongst the number of active enterprises in EU countries ranged from 3.8% in Cyprus to 21.1% in Lithuania while the average for the whole EU (excluding Greece) was 10%[101]. There are some smaller fluctuations of new business formation activity over the years but **the level of new business formation in a country or a region tends to be consistent over longer periods of time indicating a certain 'culture' of entrepreneurship**[102].

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[98] All statistical sources for new business formation have shortcomings that are more or less severe. Hence, the information that is provided by these sources should be regarded as *indicators* for the number of start-ups but should not be taken to represent the 'true' number of new businesses. Critical issues here are size thresholds, i.e. new businesses are identified only if they have passed a certain size threshold. Other critical issues are, for example, the treatment of takeover (if ownership changes the firm may be recorded as continuing or as a simultaneous entry and exit) or the neglect of certain sectors such as the liberal trades. Although none of the various available sources is perfect, there tends to be a rather high degree of correlation between most of these indicators.

[99] High-growth SMEs, defined as those companies experiencing at least 20% annual growth rate in employment or turnover for at least 3 years, are of particular interest of policy makers especially for their potential of creating new jobs and innovation (Holzl, 2009 and Lilischkis, 2011).

[100] Analyses for Germany and for The Netherlands show that a large and rapidly growing part of micro-enterprises is constituted by solo-entrepreneurs, Fritsch, Kritikos and Sorgner, (2013); Stam, (2013). For an overview on solo-entrepreneurs, reasons for self employment and their contribution to the economy, see Bosma et al. (2012), Fritsch and Wyrwich (2013). See Schindele and Weyh (2011), Storey (2004), Wagner (2004) for an overview on the micro-enterprises. Fritsch (2013) gives a review of the empirical evidence on new business formation and their contribution to economic growth. On the start-ups, see: Wagner and Sternberg (2004) Elfenbein, Hamilton and Zenger (2010), Mueller (2006), Parker (2009).

[101] Source: Brief Demographics (Marzocchi, Ramlogan and Gagliardi, 2013) based on Eurostat.

[102] Trends within countries and regions are also highlighted in some of the 2013 SBA factsheets available at: http://ec.europa.eu/enterprise/policies/sme/facts-figures-analysis/performance-review/index_en.htm. On the topic of the persistent nature of new business formation see Andersson and Koster (2011), Fritsch and Wyrwich (2013). For the relation between business formation and the entrepreneurship culture, see Beugelsdijk (2007), Freytag and Thurik (2007).

The survival rates of new businesses show considerable differences between EU countries, indicating divergent conditions for start-ups depending on the intensity of competition[103].

Differences in start-up rates and in the growth and survival of new businesses across countries have diverse reasons including the administrative burdens associated with starting a firm[104], labour market legislation such as employment protection laws, the general institutional framework, and the overall economic performance including the development of demand and the level of unemployment.

Institutional barriers to entry have a strong effect on the share of start-ups and SME employment in a country. However, differences between new business formation and the development of the SME sector can also be found across regions within a particular country under the same set of common formal institutions. Such **regional variations within the same country can often be more pronounced than the variation between countries**[105].

Another factor that directly shapes the size structure is the **minimum efficient scale of the respective industry**. Since attaining minimum efficient scale is a necessary precondition for being competitive, low minimum efficient scales are conducive to entry and survival of small businesses. Hence, many industries with low minimum efficient scales, such as many parts of the service sector, are characterised by a relatively high share of small business employment. In contrast, this share is much lower in most industries in the manufacturing sector. Shifts in the minimum efficient scale that are often induced by the development of new production technology, for example Computer Aided Manufacturing, small scale IT solutions and decentralisation of production, can also lead to respective changes in the relative productivity performance of large and small firms. Other factors such as the intensity of competition may also play a role. Due to diverging minimum efficient scales across industries, the sectoral structure of a country is an important determinant of its share of small businesses. Hence, **assuming a general trend towards a higher employment share of the service sector**[106]**, a growing share of SME employment can also be expected** in the future.

Access to finance for small businesses is another important precondition for their success. The demand for different types of finance such as loans and equity varies by industry, growth profile of firms and country. **Although SMEs in the EU do not see finance as the main limiting factor for their growth, the vast majority of these firms state that they require finance from external sources for their survival and growth**[107]**.** Consequently, insufficient access to appropriate finance may act as a serious impediment to the development of SMEs as smaller firms have a higher risk of going bankrupt and because they can provide smaller amounts of securities than their larger counterparts. Investors are more hesitant in providing capital to small firms and,

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[103] For more details, the Brief Demographics (Marzocchi, Ramlogan and Gagliardi, 2013) based on Eurostat. For detailed evidence on start-up and intensity of competition see Klapper, Laeven and Rajan (2006) and World Bank (2012).
[104] Klapper, Laeven and Rajan (2006) link administrative burden with new business formation; for more details on on labour market legislation and employment protection law, see Henrekson (2007). Boettke and Coyne (2009) analyse the effect of the institutional framework, start-up rates and business survival; for an overview on economic performance, demand and level of unemployment on start-up rates see Caliendo and Kritikos (2010), Koellinger and Thurik (2012). Finally, Estrin and Mickiewicz (2011) study the relationship between start-up rates and business survival in transition (Eastern European) countries.
[105] Bosma and Schutjens (2011).
[106] See Murata (2008).
[107] Brief Finance (Marzocchi, Ramlogan and Gagliardi, 2013b).

when they do, the conditions are often relatively unfavourable, for example charging higher interest rates.

Although large firms tend to have an innovative advantage over smaller firms[108], many small firms are also successful innovators. In particular, many examples of innovative start-ups have demonstrated that these firms are able to successfully challenge the market positions of established large firms[109]. The level of public and private sector innovation activities in a country or region is a main source of newly emerging opportunities to establish a new firm. They can also be an important factor for running a business successfully. There are large differences in the intensity of innovation activities between EU countries that indicate different levels of opportunities for innovative new and small businesses[110]. In the EU-25, SMEs account for about 36% of overall expenditure on innovation with significant differences between countries[111]. These differences correlate with the size of the knowledge creating public research infrastructure and the intensity of technology transfer particularly towards SMEs. Another important source of innovation is the qualification of personnel[112]. Innovation and qualification are important drivers for the successful entry of SMEs into international markets[113].

An insufficient supply of skilled personnel may act as a severe impediment to the development of SMEs given the relatively strong position that their larger competitors have on the labour market[114]. **A particularly important resource for the development of the SME sector is entrepreneurial skills**[115] along with a large number of well qualified people that are willing and able to set up their own firm. Hence, **workforce education can be a main element of a policy that aims at promoting SMEs and entrepreneurship.**

The report's analysis on employment in SMEs and in large firms (Sections 2.1 and 2.2) has shown the **important role played by the macro-economic environment, particularly the growth of demand**. However, these developments suggest that SMEs and larger firms are affected by the overall economic development to different degrees and that **the SME sector is more resilient to uncertainty and to negative macro-trends** compared to larger firms[116]. This result may appear surprising, given that SMEs tend to be more vulnerable due to lower availability of internal resources and more limited access to external resources as compared to large firms. The explanation is that **the development of the SME sector is to a much higher degree subject to renewal by entries and exits than the large firms**. **This fluctuation is probably the main force that leads to a quicker adjustment of the SME sector as a whole – not necessarily of the individual small firm.**

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[108] Cohen and Klepper (1996).

[109] Baumol (2004) provides many examples of radical innovation that have been introduced by new businesses.

[110] According to the European Union Innovation Scoreboard 2013, Denmark, Finland, Germany and Sweden are the innovation leaders in Europe while Bulgaria, Latvia, Poland and Romania are lagging considerably behind (European Commission, 2013).

[111] Innovation Brief based on the Community Innovation Survey 2010 (Marzocchi, Ramlogan and Gagliardi, 2013c).

[112] Toner (2011), Rosenbusch, Brinkmann, Bausch (2011), European Commission (2013).

[113] Wagner (2011).

[114] Wagner (1997).

[115] For an overview of the skills that are conducive to entrepreneurial success see Unger et al (2011).

[116] Macro-level economic stagnation (prosperity) has opposite effects on the level of new business formation. While declining (increasing) demand weakens (strengthens) the expected profitability and thereby the incentives of starting an own business high (low) levels of unemployment may stimulate (prevent) start-ups that are mainly motivated by an escape from unemployment.

The correlation analysis and the two regression models hint to the fact that **the performance of the SME sector is affected by many factors operating at different levels, from cultural and social to the microeconomic level.** The correlation amongst variables, the multivariate regression models and the discussions on the demography of SMEs is an attempt to disentangle the complex web of relationships that influence the dynamics of SME formation, their performance in terms of real value added growth and their contribution to job creation. The study indicates that meta-factors such as policy certainty and stable macroeconomic conditions constitute the foundations upon which the SME sector can prosper. The relationships between structural factors and SME growth draw attention to those elements that can either hinder or promote superior SME performance in terms of value added and employment. Moreover, the discussion on the SME demography has shed some light upon the relationships between the emergence of small business, their survival and growth. The arguments introduced have indeed uncovered many of the preconditions, the systemic characteristics and the general areas of policy intervention that may have direct effects on the performance of the SME sector.

4. CONCLUSIONS

SME employment and value added forecasts for 2013 and 2014 are mildly positive

In 2009, at the most difficult stage in the crisis, the majority of European SMEs posted negative growth in both value added and employment. Although the structural and macroeconomic conditions in which they now operate have only marginally improved, European SMEs are recording growth in real value added. Economic activity has improved since the second quarter of 2013 and it is expected to gain strength later in 2013 and into 2014; therefore, projections for SME performance in 2013 and 2014 are mildly positive.

The forecasts for the next two years indicate that **SMEs in the services sector will continue to grow** in terms of employment and value added. All classes of SMEs in the services sector, independent of the knowledge content of the services provided, are forecast to post positive growth rates in all core indicators.

In 2013 and 2014, **SMEs in the manufacturing sector are also expected to resume positive growth** in terms of employment and value added. All classes of SMEs, independent of their technological intensity, are forecast to grow uniformly.

In view of the sectoral composition of the economy and the foreseen structural changes, the EU-27 is forecast to be moving towards an advanced knowledge-based economy. As this takes place, the role of SMEs will be increasingly crucial for the economic recovery and the prosperity of Europe. The knowledge intensive services sector – composed largely of SMEs – will constitute a promising innovation engine, largely contributing to the shift of the manufacturing sector towards highly productive and more competitive operations. The sectors producing complex high technology products and services have substantially maintained their position during the height of the crisis[117] and are expected to grow in terms of employment capacity and value added.

European SMEs are trailing behind large enterprises

Larger enterprises were hit relatively harder than SMEs during the 2008/2009 crisis. At first, SMEs provided a safety net for the economy; but in 2009, employment in large enterprises began to grow whilst in SME employment continued to decline. In particular, following a deterioration of the economy in 2012, employment in SMEs endured a further drop whilst employment in large enterprises was still growing.

SMEs are now trailing behind larger enterprises also in terms of value added growth. Since 2009 SMEs have been affected more severely than large enterprises by the negative economic outlook and the lack of financial resources and have therefore experienced only limited value added growth. Besides, the progress made in the recovery of SME value added and gain in productivity since 2009 did not immediately generate new employment[118]. Nonetheless, SME value added is expected to grow during 2013-2014 although at a slower pace compared to large enterprises. SME employment

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[117] As a reminder, high technology and medium-high technology manufacturing SMEs declined relatively slower than the low-tech manufacturing SMEs whilst SMEs operating in the knowledge intensive services grew in terms of employment and value added during 2008 – 2012.

[118] Although there are exceptions: in the UK there was an almost 1% increase in SME employment for the period 2008 to 2012.

will also resume growth following improvements of credit conditions and growth of domestic demand.

There are also diverging expectations of economic recovery amongst European Member States

The crisis affected all sectors of economic activity. However, the consequences were not distributed homogenously and the trends are diverse amongst EU Member States. The research has shown that SMEs in countries with sound structural characteristics have withstood the hardship of the crisis relatively better and are expected to recover more quickly in comparison to other groups of countries. SMEs in countries characterised by relatively moderate structural characteristics have suffered worse from the crisis. For these countries, recovery is expected to be considerably more difficult. Catching-up countries underwent structural and institutional reforms which primed their economies towards paths of stable and competitive business environments and promoted faster SME growth. Significant success has been observed since 2010; these countries recovered over a half of the huge loss in SME value added whilst employment by SMEs continued on a mildly positive trend.

The role of policies

The market and framework conditions in which European SMEs operate have improved in recent years, but there is still much room for improvement. Despite European Member States making reasonable progress in the adoption and implementation of new policy measures under the Small Business Act[119], more needs to be done.

The SBA has instilled a notable - and much needed - momentum in the EU SME policy making. While it cannot be said with absolute certainty what improvements in business environment are triggered exclusively by the enactment of policy measures proposed by the SBA, the measures taken under the SBA definitely support existing initiatives and speed-up further improvements.

The first 5 years since the launch of the Small Business Act for Europe were encouraging. This holds true even in light of the fact that for most SBA policy areas the progress is still uncertain and varying in relation to specific measures and by country performances.

In general, the SBA has helped to stem the negative tide triggered by the 2008 crisis mitigating its negative effects on SMEs. Certainly, the SBA has helped to put SMEs firmly on the policy makers' radar. SME policy is no longer a fringe issue. This opens the way to future improvements in policy making and the convergence towards sustainable policies which pursue the improvement of SMEs competitiveness in a long-term and strategic fashion.

Member States and the European Institutions are set in the pursuing of a two-pronged strategy:

First, by putting more emphasis on the policy areas which were side-lined in the first five years, most notably "second chance".

Secondly, improvement in the core areas of the SBA responsive administration, entrepreneurship, access to finance and access to markets have to be followed-up upon by further actions.

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[119] See, for instance, the findings of the SBA country fact sheets 2013.

There can be no reason for complacency following the advances in these areas: the objective remains the restoration of a competitive European SME sector which is able to absorb its share of the 26 million European unemployed and the millions of young people without training opportunities, while standing its ground against overseas competition.

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ANNEX

I.   METHODOLOGICAL ANNEX

I.1.   Knowledge Intensive Services (KIS)

The following tables provide information on the distribution of the core indicators for KIS SMEs and Large enterprises. In both size classes, the distribution of knowledge intensity is heavily skewed towards market knowledge intensive services. Noteworthy is also the relatively stronger presence of large enterprises in the high-tech group (26% of the total number of large enterprises in the KIS versus only 18% of SMEs).

Table 3: Distribution of enterprises by size and knowledge intensity, EU-27 2012

| | Number of enterprises | | Share (in %) of | | | | | |
| | | | KIS | | Total services sector | | Overall economy | |
	SMEs	Large	SMEs	Large	SMEs	Large	SMEs	Large
Market services	3,433,896	5,049	78%	67%	37%	32%	17%	12%
High-tech services	788,695	1,970	18%	26%	8%	12%	4%	4%
Other services	164,656	575	4%	7%	2%	4%	1%	1%
Total knowledge intensive services	4,378,853	7,594	100%	100%	47%	48%	21%	17%
Total less knowledge intensive services	10,754,614	15,469			53%	52%	24%	19%
Total services	15,133,467	23,063			100%	100%	46%	36%
Overall economy	20,355,839	43,454					100%	100%

Source: Eurostat, DIW econ, London Economics

The distribution of employment across these various types of industries follows closely that of the number of enterprises described above.

Table 4: Distribution of employment by size and knowledge intensity, EU-27, 2012

| | Employment | | Share (in %) of | | | | | |
| | | | KIS | | Total services sector | | Overall economy | |
	SMEs	Large	SMEs	Large	SMEs	Large	SMEs	Large
Market services	10,454,208	5,900,439	74%	68%	31%	32%	12%	13%
High-tech services	2,957,116	2,397,652	21%	28%	9%	13%	3%	5%
Other services	727,971	379,351	5%	4%	2%	2%	1%	1%
Total knowledge intensive services	14,139,295	8,677,442	100%	100%	42%	47%	16%	20%
Total less knowledge intensive services	42,411,283	18,982,568			58%	53%	23%	22%
Total services	56,550,578	27,660,010			100%	100%	39%	42%
Overall economy	86,814,717	43,787,013					100%	100%

Source: Eurostat, DIW econ, London Economics

The generation of value added by enterprises active in knowledge-intensive services is heavily dominated by high-tech firms (see table below). In effect, although high-tech

firms are much less numerous, they produce a relatively higher share of value added in the case of both SMEs and large firms. In the case of large firms, high-tech knowledge intensive services alone produce 53% of the value added in the KIS sector.

Table 5: Distribution of value added by size and knowledge intensity, EU-27, 2012

| | Value Added | | Share (in %) of | | | | | |
| | | | KIS | | Total services sector | | Overall economy | |
	SMEs	Large	SMEs	Large	SMEs	Large	SMEs	Large
Market services	489,489	226,309	70%	42%	35%	25%	14%	9%
High-tech services	171,212	292,852	25%	53%	12%	32%	5%	12%
Other services	37,389	28,969	5%	5%	3%	3%	1%	1%
Total knowledge intensive services	698,090	548,131	100%	100%	49%	60%	21%	22%
Total less knowledge intensive services	1,473,526	722,325			51%	40%	21%	15%
Total services	2,171,615	1,270,455			100%	100%	42%	37%
Overall economy	3,395,383	2,495,926					100%	100%

Source: Eurostat, DIW econ, London Economics

During the period 2008-2012, amongst the various types of knowledge-intensive SMEs, those SMEs operating in the high-tech service sectors outshone those operating in other knowledge intensive services sectors and those operating in the service sector overall in terms of the increase in the number of enterprises, employment and valued added.

Figure 30: Enterprises by size and knowledge intensity, EU-27, 2008-2012 (%change)
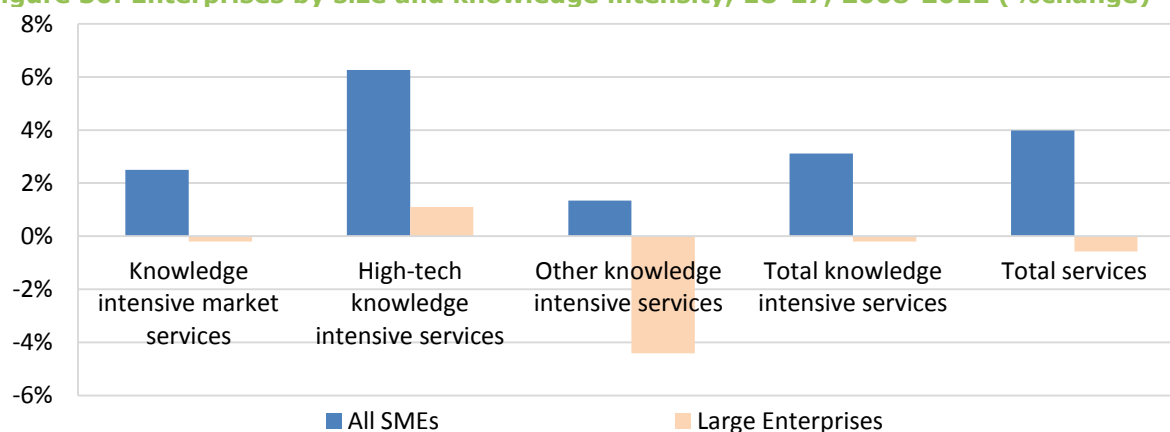
Source: Eurostat, DIW econ , London Economics

Figure 31: Employment by size and knowledge intensity, EU-27, 2008-2012 (%change)
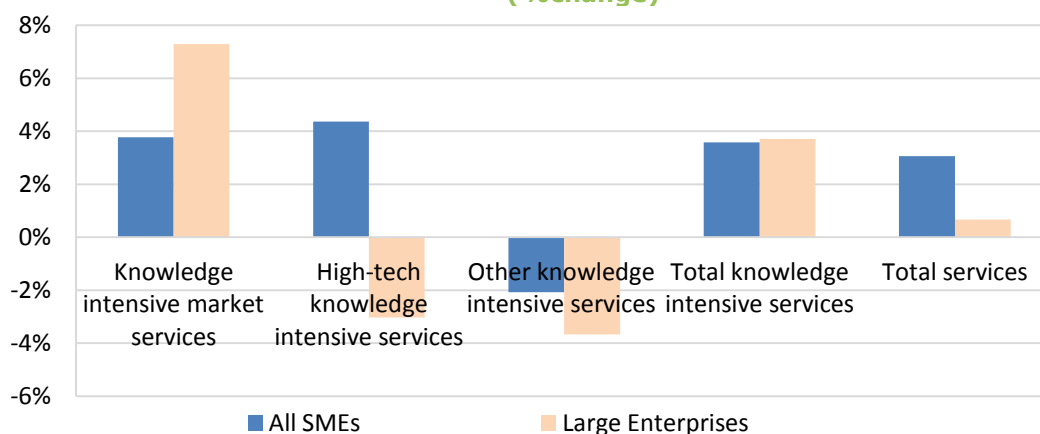
Source: Eurostat, DIW econ, London Economics

Figure 32: Value Added by size and knowledge intensity, EU-27, 2008-2012 (%change)
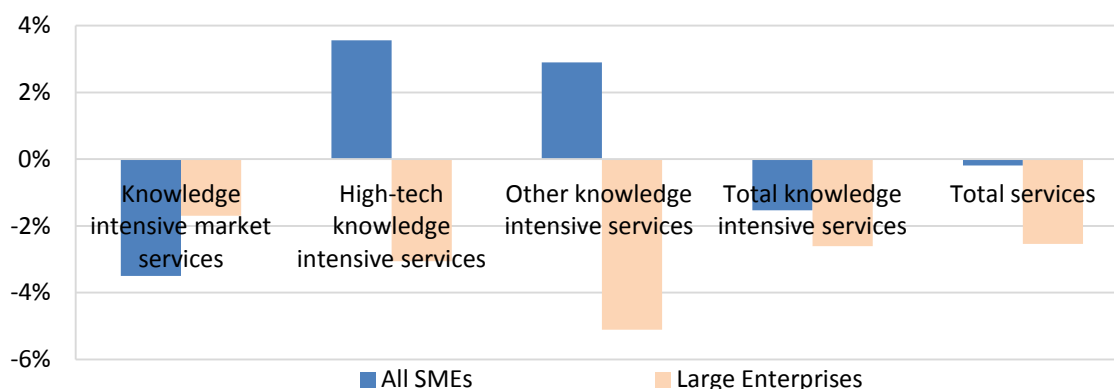
Source: Eurostat, DIW econ, London Economics

I.2.　　Technology intensity in manufacturing

The following tables describe the distribution by large enterprises and SMEs of the number of enterprises, employment and valued added across the four groups of manufacturing industries.

Table 6: Distribution of enterprises by size and technology intensity, EU-27, 2012

	SMEs			Large enterprises		
	Number	Share in the Manufacturing sector	Share in the overall economy	Number	Share in the Manufacturing sector	Share in the overall economy
Low-tech	1,077,914	53%	5%	5,291	32%	12%
Medium-low-tech	720,416	35%	4%	4,326	26%	10%
Medium-high-tech	210,268	10%	1%	5,569	34%	13%
High-tech	47,269	2%	0.23%	1,225	7%	3%
Total Manufacturing	2,055,866	100%	10%	16,410	100%	38%
Overall economy	20,355,838		100%	43,454		100%

Source: Eurostat, DIW econ, London Economics

Table 7: Distribution of employment by size and technology intensity, EU-27, 2012

	SMEs			Large enterprises		
	Number	**Share in the Manufacturing sector**	**Share in the overall economy**	**Number**	**Share in the Manufacturing sector**	**Share in the overall economy**
Low-tech	7,947,153	44%	9%	3,124,645	25%	7%
Medium-low-tech	6,137,985	34%	7%	2,814,075	22%	7%
Medium-high-tech	3,383,648	19%	4%	403,360	44%	13%
High-tech	647,885	4%	1%	1,052,593	8%	2%
Total Manufacturing	18,116,671	100%	21%	12,567,128	100%	29%
Overall economy	86,814,717		100%	43,787,013		100%

Source: Eurostat, DIW econ, London Economics

High-tech SME enterprises produce about 6% of manufacturing value added; together the high-tech and medium-high-tech SME firms (which account for 12% of the SMEs) produced 30% of total manufacturing value added generated by SMEs.

In contrast, high-tech and medium-high-tech large enterprises produced 58% of total valued added generated by large manufacturing enterprises in 2012.

Table 8: Distribution of value added by size and technology intensity, EU-27, 2012

	SMEs			Large		
	Million Euros	**Share in the Manufacturing sector**	**Share in the overall economy**	**Million Euros**	**Share in the Manufacturing sector**	**Share in the overall economy**
Low-tech	246,336	35%	7%	185,238	21%	7%
Medium-low-tech	248,255	35%	7%	178,329	20%	7%
Medium-high-tech	172,870	24%	5%	403,360	46%	16%
High-tech	39,051	6%	1%	118,589	13%	5%
Total Manufacturing	706,511	100%	21%	885,516	100%	35%
Overall economy	3,395,383		100%	2,495,926		100%

Source: Eurostat, DIW econ, London Economics

As shown in the figure below, SMEs in low-tech manufacturing industries were much harder hit in terms of number of enterprises by the 2009 recession and subsequent sluggish economic recovery. In contrast, the number of SME enterprises in medium-low and medium-high-tech industries changed very little from 2008 to 2012.

Figure 33: Number of Enterprises by size and technology intensity, EU-27, 2008-2012 (% change)
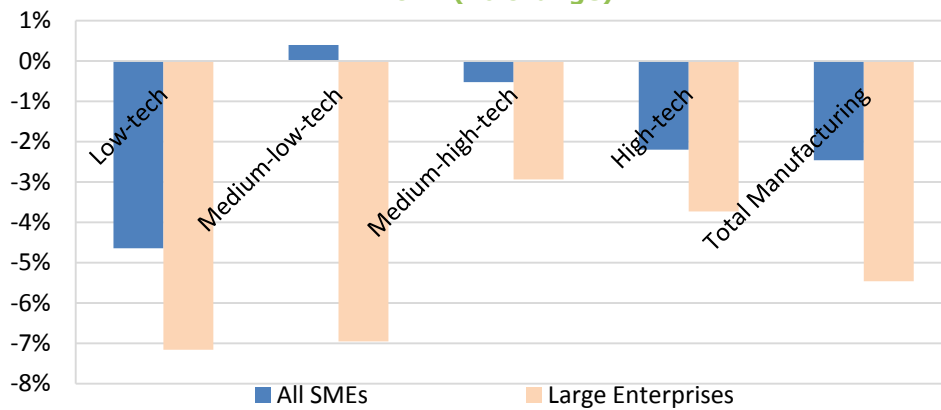
Source: Eurostat, DIW econ, London Economics

Employment dynamics in the manufacturing sector are broadly similar to those of the number of enterprises in the case of low-technology and high-technology firms. The same cannot be said, however, of the "hybrid" groups. Medium-high-tech large firms registered an increase in employment while employment fell in high-tech SMEs. Employment in large high-tech firms contracted markedly, by more than total employment by larger enterprises across all manufacturing industries.

Figure 34: Employment by size and technology intensity, EU-27, 2008-2012 (% change)
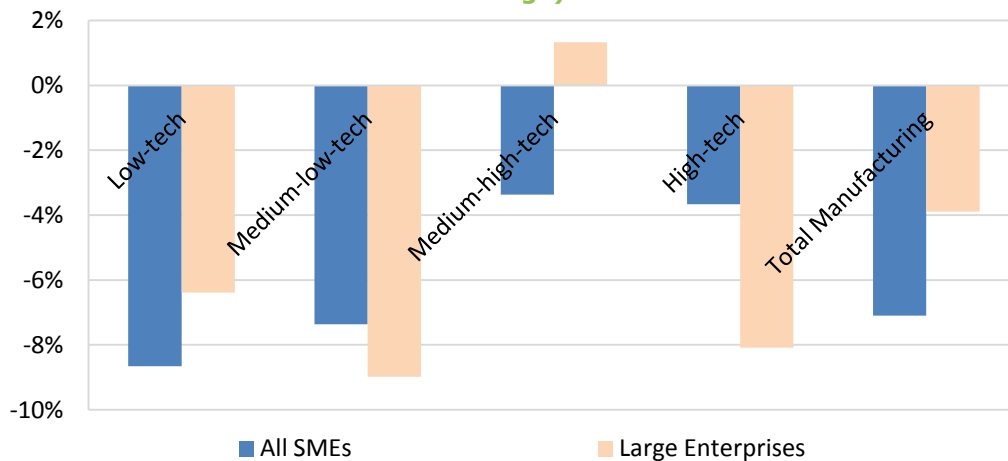
Source: Eurostat, DIW econ, London Economics

Value added generated by SMEs declined in all classes.

Figure 35: Value Added by size and technology intensity, EU-27, 2008-2012 (% change)
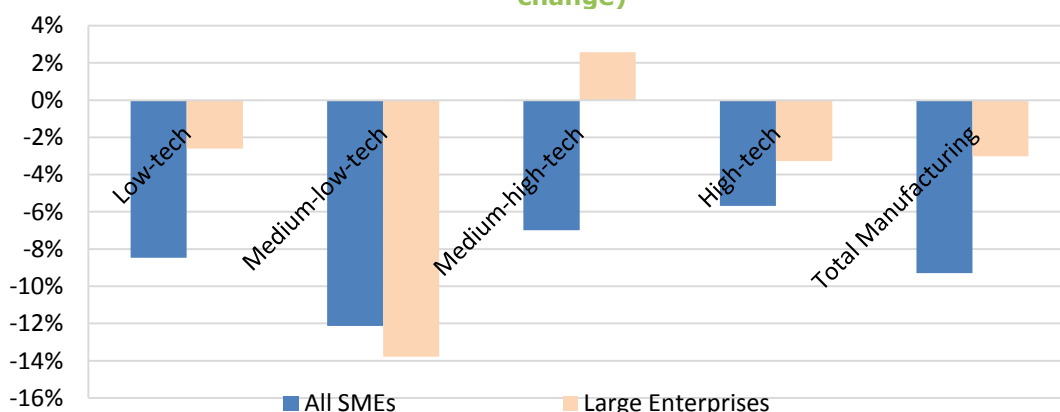
Source: Eurostat, DIW econ, London Economics

I.3.   Forward-looking analysis: Forecasts on sectoral employment, value added and productivity growth, 2012 – 2014

Projections on annual growth in employment, value added and productivity of SMES by sector of economic activity between 2012 and 2014 are reported in Figure 36.

Figure 36: employment, value added, productivity of SMES, percentage year-on-year change, EU-27, 2012-2014
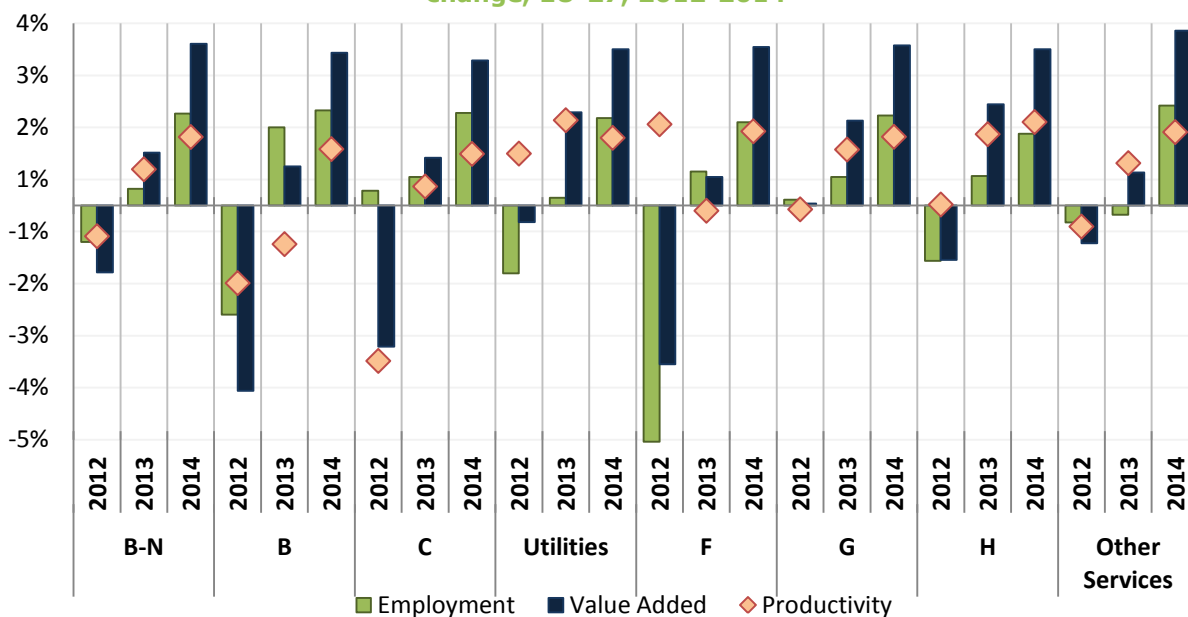
Note: sector codes are: B, "Mining and Quarrying", C, "Manufacturing", Utilities, which groups D," Electricity, gas, steam and air condition supply", and E, "Water supply, sewerage, waste management and remediation activities", F, "Construction", G, "Wholesale and retail trade; repair of motor vehicles and motorcycle", H, "Transportation and storage", Services, which groups I, "Accommodation and Food Services", J, "Information and communication", L, "Real Estate Activities", M, "Professional, Scientific and Technical Activities", and N, "Administrative and Support Services".
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

Following improvements in general economic conditions, SME operations in the wholesale and retail trade are expected to expand in 2013 and 2014 reversing the efficiency in labour productivity gained in the previous years.

SMEs in the wholesale and retail trade have suffered losses in employment and value added in 2012, whilst gross labour productivity growth was positive. In 2013, SMEs are resuming growth in employment and value added. This growth is forecast to continue into 2014, but gross labour productivity will decline.

SMEs in the service sector[120] are forecast to resume growth in employment and value added sustained by improvement in labour productivity in 2013. As growth rates in employment and value added are expected to improve further in 2014, gross labour productivity growth will stagnate.

The forecasts of SME employment, value added and gross labour productivity in the manufacturing sector shows that, after a dismal 2012 where both value added and gross labour productivity plummeted (and SME employment stagnated), the indicators of SME employment and value added are picking up, but the gross labour productivity growth, whilst better than in 2012, is still negative.

The sector where SMEs will experience the largest loss in labour productivity in 2013 is the mining and quarrying sector. Whilst in this sector SME gross labour productivity is somewhat higher than in other sectors, the expansion in employment and value added forecast for 2013 will not recover the loss experienced in 2012. It is estimated that the recovery will be based mostly on the expansion of labour-intensive activities.

SMEs in the utilities sector are expected to perform positively in 2012 and 2013. Gross labour productivity in SMEs will, however, decline slightly in 2014. With growing SME gross labour productivity in 2012 and 2013, it is expected that SME employment and value added will increase. This growth will also be sustained in 2014.

Table 9: Trend in number of Enterprises Employment and Value added in Knowledge intensive Services by and size class, percentage change 2012 - 214, EU-27

	Enterprises 2012-2014 % change		Employment 2012-2014 % change		Value Added 2012-2014 % change	
	SME	Large	SME	Large	SME	Large
High-tech services	5.0%	3.1%	4.1%	3.3%	3.5%	3.4%
Market services	5.3%	2.8%	3.1%	-5.1%	3.9%	2.2%
Other services	5.0%	4.6%	4.5%	4.0%	4.0%	3.1%
Total KIS services	5.2%	3.0%	3.4%	-2.4%	3.8%	2.9%
Less KIS services	4.9%	4.9%	4.5%	4.7%	4.2%	4.8%
Total services	5.0%	4.3%	4.2%	2.5%	4.1%	4.0%

Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

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[120] Other than the Wholesale and Retail trade and transport and storage.

Table 10: Trends in Enterprises, Employment and Value added in Manufacturing by Technology intensity and size class, 2012 - 2014, EU-27

	Enterprises 2012-2014 % change		Employment 2012-2014 % change		Value Added 2012-2014 % change	
	SME	Large	SME	Large	SME	Large
High-tech	3.4%	5.1%	4.1%	5.2%	3.7%	4.7%
Medium-high-tech	3.2%	4.2%	4.1%	3.0%	3.7%	2.0%
Medium-low-tech	3.7%	5.4%	3.9%	5.9%	3.8%	5.9%
Low-tech	4.0%	6.3%	4.5%	6.2%	3.6%	5.1%
Manufacturing	3.8%	5.3%	4.2%	4.6%	3.7%	3.8%

Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

I.4. Consistent performers, moderate performers and catching-up countries: Clusters definition, significant dynamics and forecasts

Consistent performers, moderate performers and catching-up country-cluster

The next exercise clusters Member States and Partner Countries in three categories using the cluster typology of the recently published *EC Industrial Performance Scoreboard* (EC, 2013d)[121]. This exercise aims to assess whether or not clusters of countries with similar sectoral and institutional characteristics perform uniformly in the period under review. Member States are grouped as shown in Figure 37.

- The consistent cluster includes Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Luxembourg, Netherlands, Spain, Sweden and United Kingdom;

- The moderate cluster includes Cyprus, Greece, Italy, Malta, Portugal and Slovenia; and,

- The catching-up cluster includes Bulgaria, Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Romania and Slovakia.

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[121] European Commission (2013), Industrial Performance Scoreboard – A Europe 2020 Initiative, Commission staff working document, 2013 edition.

Figure 37: Geographical distribution of countries by cluster type

■ Consistent cluster
■ Moderate cluster
☐ Catching up cluster
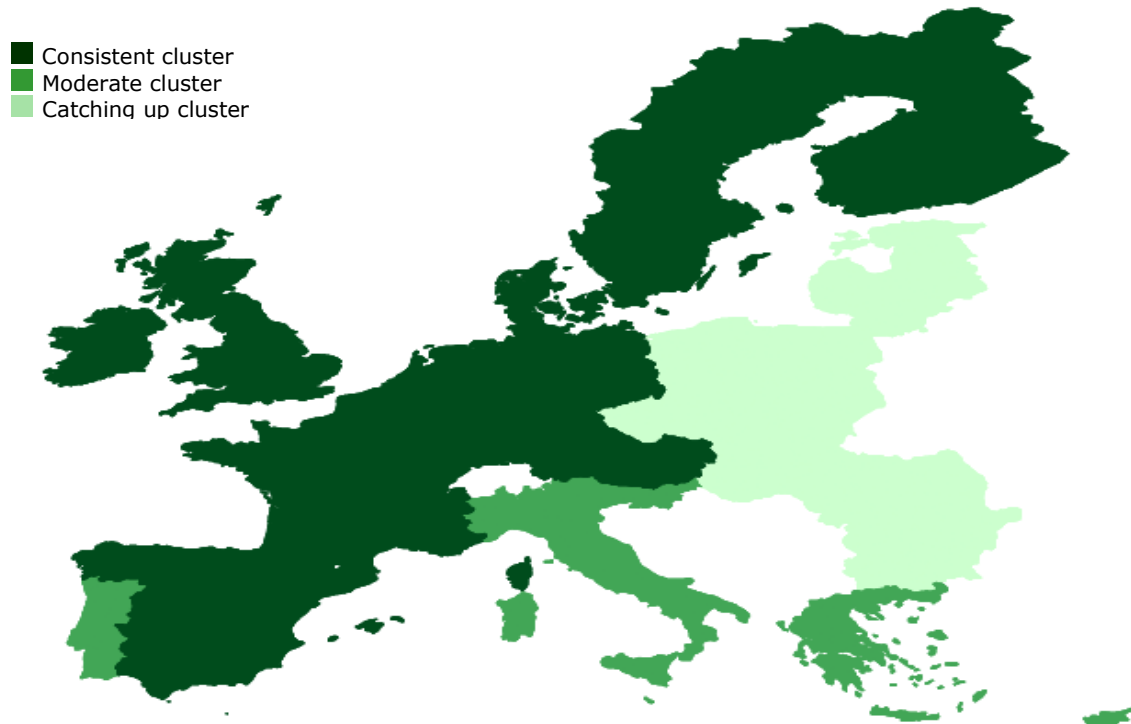
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

The consistent cluster includes those countries whose sectors are dominated by technologically-advanced firms and whose workforces are highly skilled;

The moderate cluster groups those countries showing superior performance according to some of the criteria used to cluster the countries in the Economic Performance Scoreboard, but below average in others;

The catching-up cluster comprises countries facing significant challenges, as their move towards more knowledge and skills-oriented industries is hampered by weak innovation capacity and knowledge transfer.

In 2012, the number of SMEs in the consistent performers group was 11.2 million, employing 54.8 million people. The number of SMEs in the moderate performer countries was 4.8 million and employment by SMEs 15.6 million. In 2012, in the catching-up group there were 4.3 million SMEs employing 16.3 people.

The consistent performers produced approximately 78.2% of the value added in 2012, equivalent to €2.7 trillion; the group of moderate performers produced 14.8% (€502 billion) and finally, the catching-up group accounted for only the 6.7% of the European value added (€229 billion).

The geographical distribution of the three groups, presented in Figure 37, shows that consistent performers are Northern European and Scandinavian countries, moderate performers are concentrated in the South of the continent whilst catching-up countries are clustered in Eastern Europe.

Figure 38 shows the evolution of the number of SMEs, SME employment and value added produced by SMEs for Cluster 2 comprising the consistent performers, uneven performers and catching-up countries over the period 2009-2014, 2008 is the base year (2008 = 100).

Figure 38: Forecast of Number of SMEs, Employment and Value added, 2012 - 2014, 2008 = 100
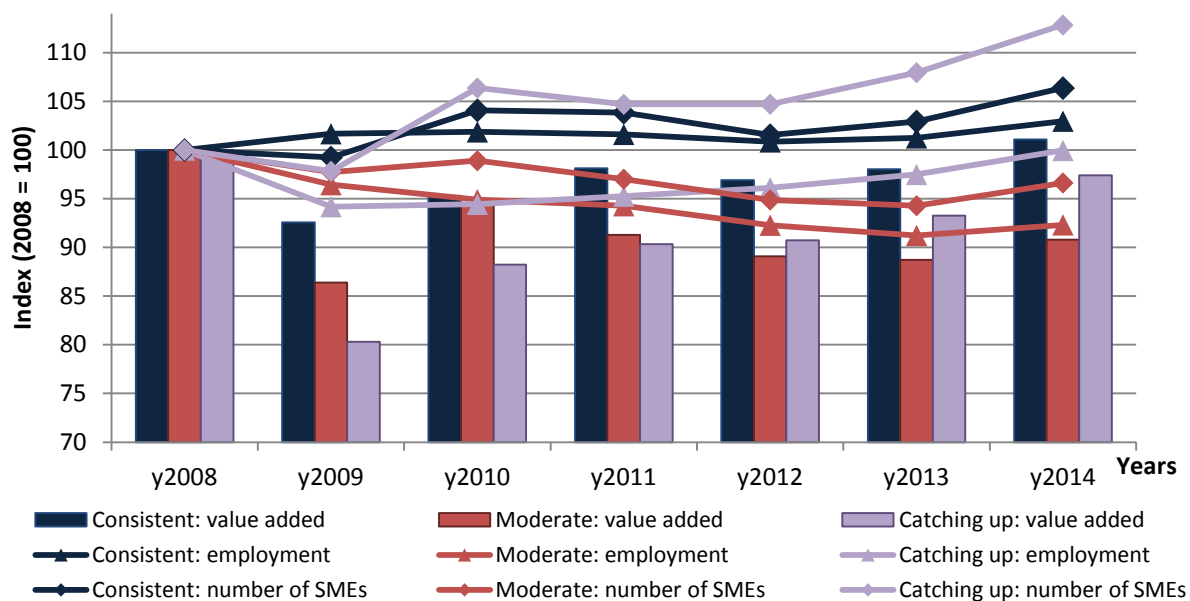
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

The number of SMEs, employment and SME value added for the consistent group are expected to surpass their respective 2008 levels by 2014.

In 2012, the number of SMEs, employees and valued added in the consistent performers group declined but recover through 2013 and 2014. By 2014, the number of SMEs, value added and the number of employees are forecast to be respectively 4.8%, 4.3% and 2.1% higher than in 2012. Moreover, all three indicators in 2014 will surpass their 2008 levels.

In contrast, in 2014, the number of SMEs, employment and SME value added for the moderate group are expected to remain well below their respective 2008 levels (9.2% below in the case of value added, 7.7% below in the case of employment and 3.4% below in the case of the number of enterprises) and surpass only moderately their 2012 levels. This weaker performance of the SMEs in the moderate cluster reflects the much difficult economic circumstances faced by the countries in this cluster.

In contrast, the catching-up group shows more robust growth in all three indicators in 2013 and 2014 than the moderate cluster. However, reflecting the more pronounced 2009 economic downturn, SME employment and value added remain in 2014 still 0.5% and 2.6% respectively below their 2008 levels.

Table 11 shows the forecasts of growth in manufacturing, according to the technological intensity of its sectors.

Table 11: Trend in number of Enterprises, Employment and value added in manufacturing by technology intensity and size class, 2012 - 2014

Consistent cluster 2012-2014	Enterprises		Employment		Value Added	
	SME	Large	SME	Large	SME	Large
high-tech	4.1%	6.4%	3.0%	4.9%	3.9%	4.2%
medium-high-tech	4.5%	6.6%	3.4%	5.6%	4.4%	5.5%
medium-low-tech	3.9%	3.7%	2.9%	0.4%	4.0%	2.4%
low-tech	3.6%	4.8%	2.9%	3.9%	3.8%	1.8%
total manufacturing	4.2%	5.3%	3.1%	2.8%	4.1%	3.2%
Moderate cluster 2012-2014,	**Enterprises**		**Employment**		**Value Added**	
	SME	Large	SME	Large	SME	Large
high-tech	0.7%	3.4%	-0.7%	1.8%	1.3%	0.5%
medium-high-tech	1.6%	6.3%	0.0%	4.5%	1.8%	0.4%
medium-low-tech	1.3%	7.3%	-0.1%	6.6%	1.8%	2.0%
low-tech	1.5%	3.8%	0.0%	1.7%	1.9%	0.9%
total manufacturing	1.0%	5.5%	-0.3%	4.3%	1.6%	1.1%
Catching-up cluster 2012-2014	**Enterprises**		**Employment**		**Value Added**	
	SME	Large	SME	Large	SME	Large
high-tech	7.3%	7.3%	3.9%	2.7%	7.1%	5.5%
medium-high-tech	4.3%	2.6%	1.1%	-0.1%	4.1%	2.4%
medium-low-tech	4.0%	4.8%	3.5%	1.3%	6.4%	3.5%
low-tech	4.7%	7.3%	4.1%	2.6%	8.3%	7.2%
total manufacturing	5.8%	5.3%	2.9%	1.5%	5.8%	4.0%

Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

Between 2012 and 2014, in the consistent performer cluster, SMEs in low-tech and high-tech manufacturing will grow slightly less rapidly in terms of value added than those in the other technology classes. In general, however the performance of the SMEs is broadly similar across all technology classes and, in most cases, somewhat less robust than that of large enterprises.

Forecasts for 2012 – 2014 in the manufacturing sector of the moderate performers are generally lower than those in the consistent performers. In terms of numbers of enterprises, employment and value added, large enterprises are expected to outperform the SMEs.

It is in the catching-up cluster that the strongest performance of the various manufacturing SMEs is expected. Whilst SMEs in high-tech manufacturing will perform better than all other manufacturing sectors in terms of number of enterprises, SMEs in low-tech manufacturing are expected to grow more in terms of employment and value added. Large enterprises are expected to grow but at rates lower than the SMEs.

Table 12 shows the forecasts for the services sectors, classified in terms of knowledge intensity.

Table 12: Trend in number of Enterprises, Employment and value added in the service sector by knowledge intensity and size class, 2012 - 2014

Consistent cluster 2012-2014	Enterprises		Employment		Value Added	
	SME	Large	SME	Large	SME	Large
high-tech services	5.6%	2.9%	2.6%	1.9%	4.0%	3.4%
market services	5.8%	4.4%	0.8%	-6.8%	4.2%	2.7%
other services	5.6%	4.5%	2.9%	2.2%	4.6%	2.6%
total knowledge intensive services	5.7%	4.0%	1.3%	-4.0%	4.2%	3.0%
less knowledge intensive services	4.4%	4.6%	2.0%	2.6%	4.6%	4.1%
total services	4.8%	4.4%	1.8%	0.5%	4.5%	3.6%
Moderate cluster 2012-2014	Enterprises		Employment		Value Added	
	SME	Large	SME	Large	SME	Large
High-tech services	3.4%	-1.7%	0.7%	-3.0%	2.3%	-0.6%
market services	2.1%	-1.8%	0.9%	-4.3%	2.4%	-0.7%
other services	0.8%	-1.5%	-0.9%	-3.3%	1.6%	-1.6%
total knowledge intensive services	2.2%	-1.8%	0.8%	-3.9%	2.3%	-0.7%
less knowledge intensive services	2.0%	0.0%	0.1%	-0.8%	2.0%	1.2%
total services	2.0%	-0.5%	0.2%	-1.8%	2.1%	0.3%
Catching-up cluster 2012-2014	Enterprises		Employment		Value Added	
	SME	Large	SME	Large	SME	Large
high-tech services	7.0%	8.4%	4.2%	4.4%	7.7%	8.1%
market services	9.2%	6.3%	5.5%	2.3%	8.3%	7.1%
other services	7.6%	7.5%	4.6%	3.3%	8.6%	6.9%
total knowledge intensive services	8.7%	6.9%	5.2%	3.0%	8.1%	7.8%
less knowledge intensive services	8.0%	8.1%	4.2%	4.2%	7.9%	8.0%
total services	7.9%	7.3%	4.1%	3.4%	7.6%	7.5%

Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

In all three groups of countries, the service sectors are expected to grow significantly faster than the manufacturing sector, independent of knowledge content.

Knowledge intensive services SMEs in the consistent cluster are expected to grow by 5.7% in terms of number of SMEs. Their employment is expected to grow by 1.3% and the value added by SMEs in the knowledge intensive services is forecast to grow by 4.2%. Less knowledge intensive service SMEs are expected to grow slightly more than the knowledge intensive service SMEs in terms of employment and value added between 2012 and 2014. SMEs generally outperform large enterprises for all three indicators and in all classes of knowledge intensity.

In the moderate cluster, knowledge intensive service SMEs are expected to grow faster than the less knowledge intensive SMEs in terms of number of SMEs, employment and value added. Whilst the forecast growth rates are lower than those shown for SMEs in the consistent cluster, as in the case of the consistent cluster, SMEs are expected to outperform larger enterprises.

SMEs in the catching-up cluster show the highest forecast rates of growth among the three clusters for all indicators in all knowledge classes.

I.5.   Eurozone and non-Eurozone countries: Significant dynamics and forecasts

Cluster analysis: Eurozone and non-Eurozone countries[122]

Using this cluster, the report aims to analyse the dynamics of SMEs by clustering EU Member States and partner countries according to whether or not they have adopted the Euro as their common currency and the sole legal tender. Figure 39 shows the geographical distribution of the countries in this cluster.

Figure 39: Geographical distribution of countries in Cluster 1
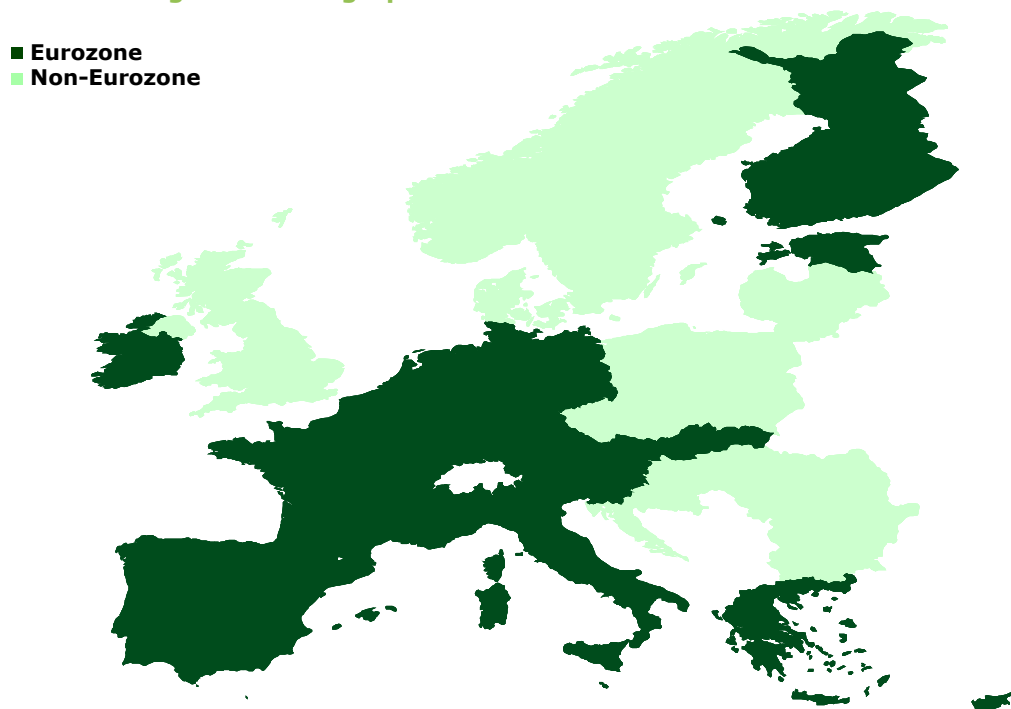
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

The dynamics of the core performance indicators in the two groups has fluctuated since the 2008 crisis began.

In the Eurozone, the number of SMEs recorded a net increase of 0.7% between 2008 and 2012. Following an initial drop of 1% in 2009, the number of SMEs, mainly micro-enterprises, grew by approximately 7% in 2010[123]. The following year, the trend reversed and continued in a downward path to 2012.

The number of SMEs in non-Eurozone countries shows a declining trend since 2008. Despite some moderate fluctuations on a year-to-year basis, in 2012, the net loss of SMEs in the non-Eurozone was 2% compared to 2008.

The trends in SME employment and value added by Eurozone and non-Eurozone countries is summarised in Figure 13[124].

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[122] **The Eurozone** currently consists of the following 17 countries: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain. **Non-Eurozone** countries comprise Bulgaria, the Czech Republic, Denmark, Croatia, Hungary, Lithuania, Latvia, Norway, Poland, Romania, Sweden, and the United Kingdom.
[123] The effect of the inclusion of solo-entrepreneurs in the statistical count of SMEs in Slovakia and the effect of the regulation on Auto entrepreneurs in France are described in section 2.2.
[124] A summary figure of all three core indicators is presented in the Annex.

Figure 40: Forecast of Number of SMEs, Employment and Value added, 2012 – 2014, 2008 = 100
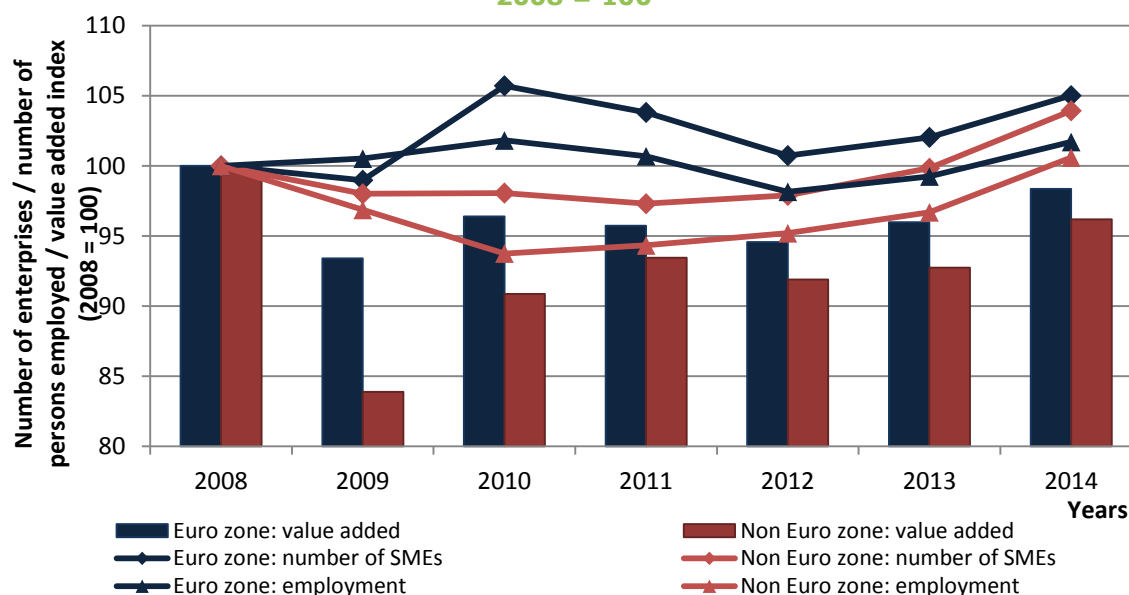
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

In 2012, in the Eurozone, SME employment and value added were still lower than 2008 despite a slight increase in the number of SMEs.

- In 2012, SME employment in the Eurozone group was circa 1.8% lower than in 2008. Diverging from the downward trend of employment followed by all European SMEs, Eurozone employment in SMEs grew by 1.8% between 2009 and 2010. The upward trend was, however, short-lived and between 2011 and 2012 reversed. The net loss of employment from the peak in 2010 and 2012 was 3.6%.

- In 2012, the value added produced by the Eurozone group was 5.4% lower than in 2008. The 7% decline in 2009 was followed by a timid recovery in 2010. From 2010 onward, the trend of value added in the Eurozone reversed again.

In 2012, all indicators show that the non-Eurozone cluster did not recover from the crisis.

- In 2012, SME employment in non-Eurozone countries was approximately 4.8% less than in 2008. Between 2008 and 2010, employment declined steadily and substantially, the loss of jobs by SMEs was over 6%. In 2011, the trend reversed, although employment did not recover.

- In 2012, the value added in non-Eurozone countries was circa 8% lower than in 2008. The drastic decline in value added suffered by non-Eurozone countries in 2009 (-26%) was followed by a dramatic recovery in the years 2010 and 2011 during which the decline in value added of SME in non-Eurozone countries relative to 2008 reduced to 6.6%. The recovery, however, was short-lived as in 2012 the value added declined again.

The dynamics of employment and value added have not been consistent in the Eurozone.

Eurozone countries that presented a positive performance in terms of both SME value added and employment between 2008 and 2012 are located in the upper right quadrant of Figure 41. These countries were Germany, Austria and Belgium and are characterised

by positive growth in SME value added and employment. The combined percentage of SMEs in over performing countries represented 35.45% of the Eurozone group in terms of share of total SME value added in 2012.

Figure 41: SME performance in the Eurozone, percentage change, 2008-2012
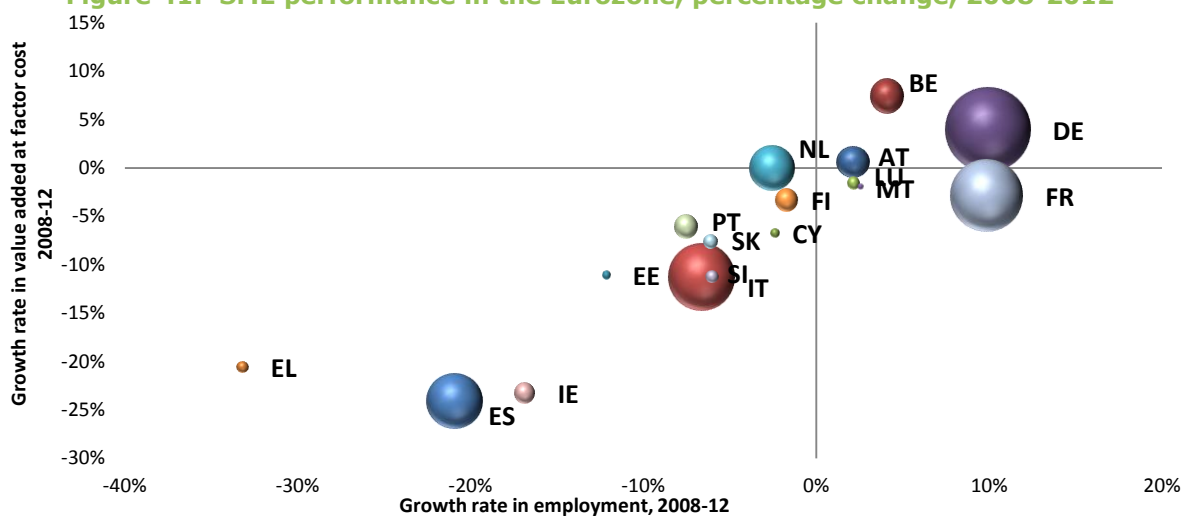
Notes: The growth rates of both indicators for Slovakia have been calculated from 2010-12 instead of 2008-2012 because in 2010, the Statistical Office of the Slovak Republic began to include sole traders into the SME category. This produced an abnormal jump in both indicators from 2009-10.
The size of each country bubble represents total SME value added at factor cost in 2012 for all sectors for that country.
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

The majority of Eurozone countries are located in the bottom left quadrant. These countries were characterised by negative growth rates in SME value added and the number of persons employed from 2008 to 2012. A large number of countries in the underperforming quadrant are relatively small in size, nonetheless, their combined weight, 34% of the total SME value added, means that the performance of these countries had a significant effect on the Eurozone trends described above.

Between 2008 and 2012, France, Luxembourg and Malta recorded positive growth in SME employment and negative growth in value added. This group of three countries accounted for a share of circa 20% of the total value added produced by SMEs in the Eurozone in 2012.

The SMEs in the Netherlands maintained a relatively stable value added but experienced a 7% decline in employment over the period under consideration.

Between 2008 and 2012, all countries in the non-Eurozone cluster exhibited negative growth in SME value added and employment (Figure 42)**.**

Figure 42: SME performance of non-Eurozone countries, percentage change, 2008 - 2012
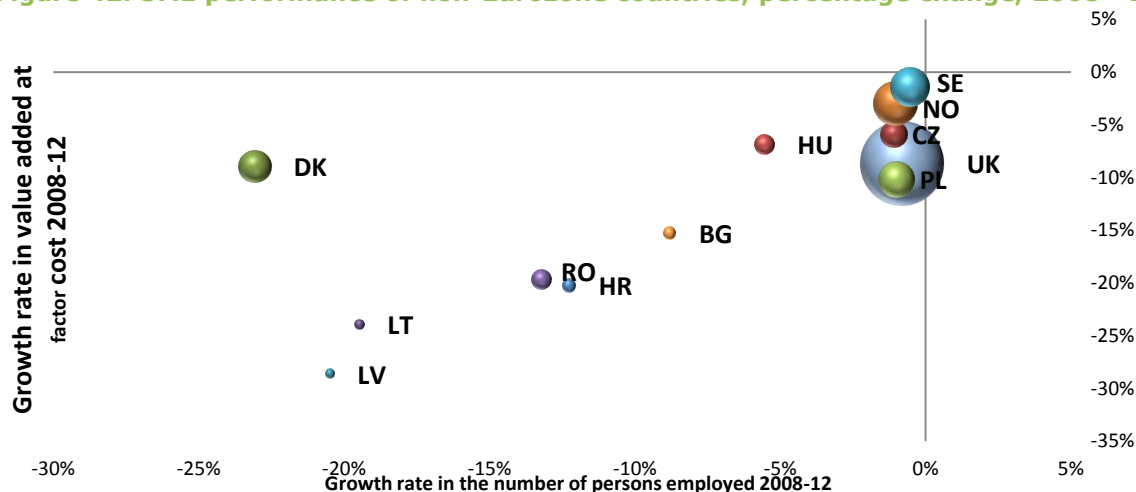
Note: The size of each country bubble represents total SME value added at factor cost in 2012 for all sectors for that country.
Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

The performance of this group of countries has been led by a group of 4 countries: the UK, Sweden, Hungary, the Czech Republic. Between 2008 and 2012, these four countries combined produced over 65% of the SME value added in the non-Eurozone. Their negative performance in SME value added and employment, however, was less than 10%.

Eurozone – non-Eurozone forecasts

In both groups of countries, the Eurozone and the non-Eurozone countries, the number of SMEs and employment in 2014 are expected to be higher than in 2008. In both groups, value added is set on a growing trend, but, in 2014, full recovery to 2008 values is not expected.

The number of SMEs in the Eurozone was previously estimated to be above that of 2008 in 2012. This positive trend is expected to continue into 2013 and 2014.

In the non-Eurozone, the number of SMEs has been on a positive trend since 2012. This trend is expected to continue into 2013 and 2014, whilst the number of SMEs in the non-Eurozone is expected to be above 2008 levels in 2014.

Value added produced by SMEs in the Eurozone is still expected to be 1.7% below its 2008 level. SME value added produced in the non-Eurozone is forecast to be 3.8% below the 2008 level.

Table 13 presents estimates over the period 2012 – 2014 on the performance of SMEs in the manufacturing sector disaggregated by the technological intensity of operations.

Table 13: Trend in number of Enterprises, Employment and value added in manufacturing by technology intensity and size class, 2012 - 2014

Eurozone countries 2012-2014	Enterprises		Employment		Value Added	
	SME	**Large**	**SME**	**Large**	**SME**	**Large**
high-tech	3.4%	3.4%	3.9%	3.3%	4.0%	3.0%
medium-high-tech	3.1%	4.1%	3.7%	3.3%	3.7%	2.6%
medium-low-tech	3.6%	5.6%	3.9%	5.8%	3.9%	5.3%
low-tech	2.8%	5.1%	3.3%	5.0%	3.4%	4.4%
total manufacturing	3.1%	4.7%	3.6%	4.2%	3.7%	3.5%
Non-Eurozone countries 2012-2014	**Enterprises**		**Employment**		**Value Added**	
	SME	**Large**	**SME**	**Large**	**SME**	**Large**
high-tech	3.7%	8.6%	4.8%	9.5%	3.3%	8.4%
medium-high-tech	3.6%	4.4%	5.1%	2.2%	4.0%	-0.2%
medium-low-tech	4.0%	5.2%	4.2%	6.1%	3.9%	8.0%
low-tech	6.4%	7.7%	6.8%	7.4%	4.7%	6.3%
total manufacturing	5.1%	6.1%	5.6%	5.3%	4.2%	4.4%

Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

In the Eurozone, between 2012 and 2014, it is expected that the number of SMEs will increase in all manufacturing classes. However, in the low-tech manufacturing class the expected growth is marginally lower than that of all manufacturing classes. In terms of SME employment, the expectations are similar. While high-tech manufacturing is expected to grow by 3.9% between 2012 and 2014, the overall growth of the low-tech manufacturing is forecast at 3.3%. In terms of value added by SMEs, the story is the same: value added by SMEs in the high-tech manufacturing group is expected to be higher than in low-tech manufacturing sector. Comparing the forecasts of core SME indicators with those of large enterprises, it can be seen that larger enterprises are expected to perform better than SMEs in almost all sectors, except for the high-tech sector. Expected growth rates in value added for high-tech and medium-high-tech SMEs are higher than in large enterprises for the period 2012- 2014.

In the non-Eurozone, all SME indicators are expected to grow at a higher rate than in the Eurozone during 2012 – 2014 and low-tech SMEs are expected to lead this recovery.

The expected contribution of the service sector to Eurozone and non-Eurozone countries, disaggregated by the knowledge intensity of the services is summarised in Table 14.

Table 14: Trend in number of Enterprises, Employment and value added in the service sector by knowledge intensity and size class, Cluster 1), 2012 - 2014

Eurozone Countries 2012 - 2014	Enterprises		Employment		Value Added	
	SME	Large	SME	Large	SME	Large
high-tech services	5.2%	2.5%	3.8%	3.1%	3.7%	3.5%
market services	4.6%	2.5%	1.9%	-9.2%	4.1%	2.1%
other services	4.5%	5.0%	3.7%	5.1%	3.9%	3.7%
total knowledge intensive services	4.7%	2.7%	2.3%	-5.3%	4.0%	3.0%
less knowledge intensive services	4.2%	5.0%	4.0%	5.5%	4.2%	5.6%
total services	4.4%	4.2%	3.6%	1.9%	4.1%	4.5%
Non-Eurozone countries 2012 – 2014	Enterprises		Employment		Value Added	
	SME	Large	SME	Large	SME	Large
high-tech services	4.9%	4.6%	4.8%	4.0%	3.6%	3.8%
market services	6.8%	3.7%	5.7%	3.1%	4.0%	2.8%
other services	5.8%	4.2%	5.8%	2.9%	4.9%	2.6%
total knowledge intensive services	6.3%	3.9%	5.5%	3.3%	4.0%	3.3%
less knowledge intensive services	6.4%	4.9%	5.7%	3.7%	4.6%	3.6%
total services	6.4%	4.6%	5.6%	3.6%	4.3%	3.4%

Source: Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

In the Eurozone, for the period 2012-2014, it is expected that the knowledge intensive services will lead the recovery. In terms of the number of SMEs, high-tech services are expected to grow by 5.2%, in terms of employment by 3.8% and in terms of value added by 3.7%. In the Eurozone, SMEs are expected to outperform large enterprises in all indicators. Large enterprises seem to have a lead on the SMEs in terms of employment and value added in the less knowledge intensive services.

In countries not in the Eurozone, knowledge intensive services are expected to grow slightly more than in the Eurozone: 6.3% in terms of number of SMEs, 5.5% in terms of employment and 4% in terms of value added. The large enterprises, also in this case, are expected to be outperformed by SMEs, even if the margin is much limited.

I.6. Statistical analysis of the factors affecting growth in SME value added and employment: paired correlations and regression models for SME real value added growth and percentage change on SME employment 2009-2011

The first quantitative exercise carried out in exploring the links between changes in real value added by SMEs and change in SME employment in the period 2009-2011 and macroeconomic and structural variables consists of the calculation of paired correlations.

1) Paired Correlations
Percentage change of real value added of SMEs 2009-2011

Percentage change of Employment in SMEs 2009-2011	*.439*
Macroeconomic and trade variables	
Percentage change in Gross fixed capital formation average 2009/2011-2005/2008	.126
Percentage change final consumption expenditure of households 2009- 2011	.171
Cumulative used state aid to financial sector (2008-2011)	-.480
Change in final consumption expenditure of general government as share of GDP between 2005-2008 and 2009-2011	.207
Average share of imports and exports of goods in world trade intra EU trade 2009-2011*	.123
Lending intensity (net lending over GDP) 2009-2011	.337
Structural variables	
Percentage change in real value added of large enterprises (2009-2011)	.523
Share of knowledge intensive value added over services value added (2008)	.216
Total R&D spending of the economy (GERD)2009-2011	.157
Total spending on R&D performed by businesses of the economy (BERD)2009-2011	.132
Innovation intensity - economy-wide innovation expenditure as a share of GDP, 2010	.302
WEF index on Infrastructure[125] - global competitiveness index (at the beginning of the crisis 2008)	.071

2) Paired Correlations:
Percentage change Employment in SMEs 2009-2011

Macroeconomic and trade variables	
Percentage change in Gross fixed capital formation average 2009/2011-2005/2008	.481
Percentage change final consumption expenditure of households 2009- 2011	.074
Public Expenditure on labour market policies (2009-2011)	.127
Change in Labour cost index – other than wages and salaries 2009-2011	-.099
Burden of government index (2008)	-.062
Average share of imports and exports of goods in world trade intra EU trade 2009-2011*	.030
Net lending over GDP 2009-2011	.194
Structural variables	
Percentage change in the SME value added at constant prices (2009-2011)	.439
Share of medium low and low-tech manufacturing value added over total manufacturing (2009-2011)	.147
Percentage of employees with education attainment isced97_3_4 (change 2009–2011)	.128
Total R&D spending of the economy (GERD) 2009-2011	.417
Total Business R&D spending of the economy (BERD) 2009-2011	.370
Innovation intensity - economy-wide innovation expenditure as a share of GDP, 2010	.395
WEF index on Infrastructure - global competitiveness index (*at the beginning of the crisis:* 2008)	.511
WEF index on Institutions[126] - global competitiveness index (*at the beginning of the crisis* 2008)	.333

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[125] The Infrastructure index is built by averaging out indicators of: 1) Quality of overall infrastructure; 2) Quality of roads; 3) Quality of railroad infrastructure; 4) Quality of port infrastructure; 5) Quality of air transport infrastructure; 6) Available airline seat km/week (millions); 7) Quality of electricity supply; 8) Mobile telephone subscriptions/100 pop.; 9) Fixed telephone lines/100 population.

[126] Institutions index is built by averaging out indicators of: 1) Property rights; 2) Intellectual property protection; 3) Diversion of public funds; 4) Public trust in politicians; 5) Irregular payments and bribes; 6) Judicial independence; 7) Favoritism in decisions of government officials; 8) Wastefulness of government spending; 9) Burden of government regulation; 10) Efficiency of legal framework in settling disputes; 11) Efficiency of legal framework in challenging regulations; 12) Transparency of government policymaking; 13) Business costs of terrorism; 14) Business costs of crime and violence; 15) Organized crime; 16) Reliability of

Further statistical analysis was conducted through two cross-section regression models[127].

The first model focuses on the factors affecting SME real value added change between 2009 and 2011, and the second model focuses on the factors affecting SME employment change in the same period. The period chosen reflects the height of the 2008/2009 crisis and SMEs efforts to work their way out of it. The explanatory factors can be grouped as macroeconomic, reflecting macroeconomic variables and policies. These include state aid to the financial sectors, public final demand, the burden of government index, expenditure on labour market policies and investments. Structural factors include indicators of the composition of economic activity (change in real Value added of large enterprises, share of knowledge intensive services and of medium-low-tech and low-tech SMEs in manufacturing) and capabilities indicators such as innovation expenditure and labour force skills.

Model 1 - Definition of indicators:

Indicator	Method	Data Source
Percentage change in the SME value added at constant prices (2009-2011)	SME value added in real terms is equal to nominal SME value added divided by the GDP deflator (index 2005=100)	Eurostat, National Statistical Offices, DIW, DIW econ, London Economics
Cumulative used state aid to financial sector (2008-2011)	Level of the variable (sum over period 2008-2011)	DG Competition report: http://ec.europa.eu/competition/
Change in final consumption expenditure of general government as share of GDP between 2005-2008 and 2009-2011	Final consumption expenditure of general government over GDP (average 2005-2008) - Final consumption expenditure of general government over GDP (average 2009-2011)	Eurostat: General government expenditure by function (COFOG) – Final consumption expenditure http://epp.eurostat.ec.europa.eu/ Statistics Database: Government Statistics (gov)
Percentage change in real value added of large enterprises (2009-2011)	Large enterprises value added in real terms is equal to nominal value added by large enterprises divided by the GDP deflator (index 2005=100)	Eurostat, National Statistical Offices, DIW, DIW econ, London Economics
Share of knowledge intensive value added over services value added (2008)	KIS value added over value added in sectors G-N	Eurostat, National Statistical Offices, DIW, DIW econ, London Economics
Innovation intensity - economy-wide innovation expenditure as a share of GDP (2010)	Total innovation expenditure (for in-house and external R&D, acquisition of machinery, equipment, software and external knowledge) in 2010 over GDP at market prices	Eurostat: Community Innovation Survey for year 2010 – [inn_cis7_exp] http://epp.eurostat.ec.europa.eu/ Statistics Database: Science and Technology (inn)

police services; 17) Ethical behavior of firms; 18) Strength of auditing and reporting standards; 19) Efficacy of corporate boards; 20) Protection of minority shareholders' interests; 21) Strength of investor protection, 0–10 (best).
[127] The models were run on IBM-SPSS Statistics, Release 20. The following settings were used:
Regression method: Enter
Stepping Method Criteria: Use probability of F, Entry: $p(F)$ 0.5 – Removal: $p(F)$ 0.10
Missing values: exclude cases pairwise
Collinearity diagnostics: tolerance/VIF (threshold <3).

Descriptive statistics of indicators:

Dependent variable: Percentage change in the SME value added at constant prices (2009-2011)

Descriptive Statistics	Mean	Std. Deviation	N
Percentage change in the SME value added at constant prices (2009-2011)	.0004	.0543	25
Cumulative used state aid to financial sector (2008-2011)	.1748	.4498	25
Change in final consumption expenditure of general government as share of GDP between 2005-2008 and 2009-2011	-.0153	.04805	25
Percentage change in real value added of large enterprises (2009-2011)	.0235	.0684	25
Share of knowledge intensive value added over services value added (2008)	.2899	.0504	25
Innovation intensity - economy-wide innovation expenditure as a share of GDP (2010)	.0066	.0030	24[a]

[a] UK Innovation intensity (2010) not available.

Correlation table

Correlations	1	2	3	4	5	6
Percentage change in the SME value added at constant prices (2009-2011)	1.000					
Cumulative used state aid to financial sector (2008-2011)	-.480	1.000				
Change in final consumption expenditure of general government as share of GDP between 2005-2008 and 2009-2011	.207	.323	1.000			
Percentage change in real value added of large enterprises (2009-2011)	.523	-.150	-.243	1.000		
Share of knowledge intensive value added over services value added (2008)	.216	.222	-.141	.141	1.000	.
Innovation intensity - economy-wide innovation expenditure as a share of GDP, 2010	.302	.068	.084	-.040	.264	1.000

Model summary

Dependent variable: Percentage change in the SME value added at constant prices (2009-2011)						
	Coefficient (st. Error)	Standardised coefficient	t – stat [a]	R squared	Adj. R squared	F – stat [a]
				0.672	0.581	7.357***
Independent variables:						
Cumulative used state aid to financial sector (2008-2011)	-0.071 (0.018)	-0.585	3.898***			
Change in final consumption expenditure of general government as share of GDP between 2005-2008 and 2009-2011	0.321 (0.169)	0.321	2.138**			
Percentage change in real value added of large enterprises (2009-2011)	0.388 (0.112)	0.489	3.462***			
Share of knowledge intensive value added over services value added (2008)	0.271 (0.161)	0.251	1.677			
Innovation intensity - economy-wide innovation expenditure as a share of GDP, 2010	4.815 (2.541)	0.268	1.895*			

Note: (a) ***= sig. < 0.01; ** = sig. < 0.05; * = sig. < 0.10

Model 2 - Definition of indicators

Indicator	Method	Data Source
Change (%) in SME employment (2009-2011)	SME employment cumulative % change 2009-2011	Eurostat, National Statistical Offices, DIW, DIW econ, London Economics
Burden of government index (2008)	Burden of government regulation index. Variable 1.09 from World Competitiveness Report (WEF)	http://www.weforum.org/issues/competitiveness-0/gci2012-data-platform/
Public Expenditure on labour market policies (2009-2011)	Public expenditure on labour market policy (average 2009-2011)	Eurostat: Labour market policy (lmp) – http://epp.eurostat.ec.europa.eu/ Statistics Database: Population and social conditions
Percentage change in gross fixed capital formation (average 2009/2011-2005/2008)	Change in gross capital formation (average 2005-2008) - Change in gross capital formation (average 2009-2011)	Eurostat: Gross fixed capital formation by asset type (nama_pi) http://epp.eurostat.ec.europa.eu/ Statistics Database: Annual National Accounts (nama)
Percentage of employees with education attainment isced97_3_4 (change 2009–2011)	Change share of employment by education attainments (y 15-74) ISCED97 – level 3 and 4 (average 2009-2011)	Eurostat: Persons with a given education attainment level by sex, age groups and labour status (%) – ISCED97 – ED 3_4 – Statuts: Employed [edat_lfs_9904] http://epp.eurostat.ec.europa.eu/ database: Statistics Educational level of the population (edata1)
Percentage change in the SME value added at constant prices (2009-2011)	SME value added in real terms is equal to nominal SME value added divided by the GDP deflator (index 2005=100)	Eurostat, National Statistical Offices, DIW, DIW econ, London Economics
Innovation intensity - economy-wide innovation expenditure as a share of GDP, 2010	Total innovation expenditure (for in-house and external R&D, acquisition of machinery, equipment, software and external knowledge) in 2010 over GDP at market prices	Eurostat: Community Innovation Survey for year 2010 – [inn_cis7_exp] http://epp.eurostat.ec.europa.eu/ Statistics Database: Science and Technology (inn)
Share of medium-low and low-tech manufacturing value added over total manufacturing (2009-2011)	Share of medium-low and low-tech SME value added over value added in sector C – average 2009-2011	Eurostat, National Statistical Offices, DIW, DIW econ, London Economics

Descriptive statistics of indicators:

Descriptive Statistics			
	Mean	Std. Deviation	N
Change (%) in SME employment (2009-2011)	.0039	.0779	25
Burden of government index (2008)	3.1687	.6314	25
Public Expenditure on labour market policies (2009-2011)	1.7613	1.0981	25
Percentage change in gross fixed capital formation (average 2009/2011-2005/2008)	-3.8817	3.7959	25
Percentage of employees with education attainment isced97_3_4 (change 2009–2011)	-.1840	2.5906	25
Share of medium-low and low-tech manufacturing value added over total manufacturing (2009-2011)	.7372	.0867	25
Innovation intensity - economy-wide innovation expenditure as a share of GDP, 2010	.0066	.0030	24

Correlation table

Correlations								
	1	2	3	4	5	6	7	8
Change (%) in SME employment (2009-2011)	1.000							
Burden of government index (2008)	-.062	1.000						
Public Expenditure on labour market policies (2009-2011)	.127	.043	1.000					
Percentage change in gross fixed capital formation (average 2009/2011-2005/2008)	.481	-.304	-.020	1.000				
Percentage of employees with education attainment isced97_3_4 (change 2009–2011)	.128	-.069	-.028	.020	1.000			
Percentage change in the SME value added at constant prices (2009-2011)	.439	-.021	-.377	.126	-.205	1.000		
Share of medium-low and low-tech manufacturing value added over total manufacturing (2009-2011)	.147	.029	-.490	-.014	-.094	.231	1.000	
Innovation intensity - economy-wide innovation expenditure as a share of GDP, 2010	.395	.484	.128	-.199	.122	.302	-.205	1.000

Model summary

Dependent variable: Change (%) in SME employment 2009-2011						
	Coefficient (st. Error)	Standardised coefficient	t – stat [a]	R ^2	Adj. R^2	F [a]
				0.711	0.584	5.617***
Independent variables:						
Burden of government index (2008)	-0.019 (0.021)	-0.154	0.916			
Public Expenditure on labour market policies (2009-2011)	0.029 (0.012)	0.402	2.381**			
Percentage change in gross fixed capital formation (average 2009/2011-2005/2008)	0.010 (0.003)	0.499	3.460***			
Percentage of employees with education attainment isced97_3_4 (change 2009–2011)	0.005 (0.004)	0.162	1.103			
Percentage change in the SME value added at constant prices (2009-2011)	0.462 (0.256)	0.322	1.803 *			
Innovation intensity - economy-wide innovation expenditure as a share of GDP, 2010	12.390 (4.917)	0.481	2.520**			
Share of medium low and low-tech manufacturing value added over total manufacturing (2009-2011)	0.355 (0.145)	0.395	2.450**			

Note: (a) ***= sig. < 0.01; ** = sig. < 0.05; * = sig. < 0.10

II.   ADDITIONAL TABLES, GRAPHS, AND CHARTS

Table 15: Composition of growth in the EU-27

Composition of Growth - EU-27										
Real annual percentage change	2011		2007	2008	2009	2010	2011	2012	2013	2014
	Bn € Current Prices	% GDP	Real Percentage Change							
Private Consumption	7335.6 (7339.2)	58 (-)	2.2	0.3	-1.5	1.1	0.1	-0.7 (-)	-0.4 (-0.2)	1.0 (1.1)
Public Consumption	2742.2 (2743.5)	21.7 (-)	1.8	2.3	2.2	0.7	-0.2	0.1 (0.2)	0.2 (-0.1)	0.4 (0.3)
Gross fixed capital formation	2342.7 (2346.7)	18.5 (-)	6.3	-1.2	-13	0.2	1.4	-2.8 (-2.9)	-1.7 (-1)	2.6 (2.8)
Change in stocks as % of GDP	72.4 (77.4)	0.6 (-)	0.9	0.6	-0.4	0.4	0.7	0 (-)	0 (-0.1)	-0.2 (0)
Exports of goods and services	5524.4 (5525.8)	43.7 (-)	5.6	1.6	-11.7	10.7	6.4	2.3 (-)	2.0 (2.6)	4.9 (5)
Final Demand	18017.4 (18032.7)	142.5 (-)	4	0.6	-6.4	4.1	2.3	-0.3 (-)	0.2 (0.5)	2.3 (2.5)
Imports of goods and services	5380.4 (-)	42.6 (42.5)	5.9	1.1	-11.6	9.7	4.1	-0.3 (-0.1)	0.8 (1.5)	4.5 (4.6)
GDP	12642.4 (12652.3)	100	3.2	0.3	-4.3	2.1	1.5	-0.3 (-)	-0.1 (0.1)	1.4 (1.6)
GNI	12656.9 (12660.8)	100 (100.1)	3	0.1	-4.2	2.2	1.5	-0.4 (-0.5)	0 (0.1)	1.4 (1.6)
p.m. GDP Euro Area	9420.0 (9421.2)	74.5 (-)	3	0.4	-4.4	2	1.4	-0.6 (-)	-0.4 (-0.3)	1.2 (1.4)
Contribution to change in GDP										
Private consumption			1.3	0.2	-0.9	0.6	0.1	-0.4 (-)	-0.2 (-0.1)	0.6 (0.7)
Public consumption			0.4	0.5	0.5	0.2	0	0 (-)	0 (-)	0.1 (-)
Investment			1.3	-0.2	-2.7	0	0.3	-0.5 (-)	-0.3 (-0.2)	0.5 (-)
Inventories			0.4	-0.2	-1.1	0.8	0.3	-0.5 (-)	-0.2 (-0.1)	0 (0.1)
Exports			2.2	0.6	-4.8	4	2.6	1 (-)	0.9 (1.2)	2.2 (2.3)
Final Demand			5.5	0.8	-9.1	5.6	3.2	-0.5 (-0.4)	0.3 (0.7)	3.3 (3.5)
Imports (minus)			-2.3	-0.4	4.8	-3.5	-1.6	0.1 (-)	-0.3 (-0.6)	-1.9 (-2)
Net Export			-0.1	0.2	-0.1	0.5	1.0	1.1 (-)	0.6 (0.5)	0.3 (-)

Source: European Commission (2013a,b), in brackets previous estimates, (-) denotes no change from previous estimates,

Table 16: Firm size distribution and average firm size by size band and sector of economic activity in EU-27, 2012

	B	C	D	E	F	G	H	I	J	L	M	N	B-N EU-27
0-9													
N.	13,547	1,685,19	57,297	53,982	2,804,90	5,387,99	927,374	1,558,49	783,781	1,155,13	3,281,53	1,074,2	18,800,
Employment	37,336	4,235,36	53,443	125,090	5,550,10	11,253,6	1,915,87	4,198,90	1,315,11	1,618,69	5,217,36	1,973,5	37,494,
Average size	2.76	2.51	0.93	2.32	1.98	2.09	2.07	2.69	1.68	1.40	1.59	1.84	1.99
10-49													
N.	3,804	296,844	2,504	10,632	193,815	349,142	83,361	151,880	45,638	20,904	113,557	77,648	1,349,7
Employment	75,985	6,137,18	59,601	233,916	3,561,11	6,771,05	1,737,65	2,884,29	953,766	397,586	2,198,15	1,694,0	26,704,
Average size	19.97	20.67	23.80	22.00	18.37	19.39	20.84	18.99	20.90	19.02	19.36	21.82	19.78
50-249													
N.	787	73,827	1,371	3,634	20,223	45,796	15,271	12,970	9,584	3,346	13,877	21,944	222,628
Employment	79,471	7,744,11	142,386	382,741	1,846,27	4,434,06	1,579,23	1,212,52	987,961	343,778	1,442,88	2,420,4	22,615,
Average size	100.98	104.90	103.87	105.31	91.30	96.82	103.42	93.49	103.09	102.75	103.98	110.30	101.59
SMEs													
N.	18,138	2,055,86	61,172	68,249	3,018,94	5,782,93	1,026,00	1,723,34	839,003	1,179,38	3,408,96	1,173,8	20,400,
Employment	192,792	18,116,6	255,430	741,747	10,957,4	22,458,7	5,232,75	8,295,71	3,256,84	2,360,05	8,858,40	6,088,0	86,814,
Average size	10.63	8.81	4.18	10.87	3.63	3.88	5.10	4.81	3.88	2.00	2.60	5.19	4.26
250+													
N.	207	16,410	647	863	2,264	7,227	3,151	1,638	2,288	568	2,417	5,773	43,454
Employment	377,501	12,567,1	993,899	625,306	1,563,16	9,261,98	4,995,16	1,802,16	2,539,79	366,918	1,919,69	6,774,2	43,787,
Average size	1820.59	765.83	1535.21	724.97	690.54	1281.54	1585.19	1099.98	1110.03	646.07	794.11	1173.43	1007.66
Total													
N.	18,346	2,072,27	61,820	69,111	3,021,20	5,790,16	1,029,15	1,724,98	841,291	1,179,95	3,411,38	1,179,6	20,400,
Employment	570,293	30,683,7	1,249,32	1,367,05	12,520,6	31,720,7	10,227,9	10,097,8	5,796,63	2,726,97	10,778,1	12,862,	130,601
Average size	31.09	14.81	20.21	19.78	4.14	5.48	9.94	5.85	6.89	2.31	3.16	10.90	6.40

Sector codes are: B, "Mining and Quarrying", C, "Manufacturing", D," Electricity, Gas, Steam and Air Condition Supply", E, "Water Supply, Sewerage, Waste Management and Remediation Activities", F, "Construction", G, "Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles", H, "Transportation and storage", I, "Accommodation and Food Services", J, "Information and Communication", L, "Real Estate Activities", M, "Professional, Scientific and Technical Activities", and N, "Administrative and Support Services

Source: Eurostat, National Statistical Offices, DIW, DIWecon, London Economics, MIoIR

Table 17: firms' size distribution and gross labour productivity (in € per year) by size band and sector of economic activity in EU-27, 2012

B-N EU-27	B	C	D	E	F	G	H	I	J	L	M	N	B-N EU-27
0-9													
Employment	37,336	4,235,367	53,443	125,090	5,550,108	11,253,622	1,915,873	4,198,906	1,315,113	1,618,693	5,217,364	1,973,543	37,494,458
Value added (€mill)	7,165	113,724	16,699	7,790	179,187	279,969	62,768	71,901	57,560	136,949	224,306	84,707	1,242,724
Labour productivity	191.90	26.85	312.46	62.28	32.29	24.88	32.76	17.12	43.77	84.60	42.99	42.92	33.14
10-49													
Employment	75,985	6,137,185	59,601	233,916	3,561,119	6,771,050	1,737,651	2,884,291	953,766	397,586	2,198,159	1,694,042	26,704,352
Value added (€mill)	5,758	235,054	9,426	14,504	139,609	268,594	71,856	54,724	58,273	32,913	122,220	63,457	1,076,388
Labour productivity	75.77	38.30	158.15	62.01	39.20	39.67	41.35	18.97	61.10	82.78	55.60	37.46	40.31
50-249													
Employment	79,471	7,744,119	142,386	382,741	1,846,272	4,434,063	1,579,234	1,212,522	987,961	343,778	1,442,885	2,420,474	22,615,906
Value added (€mill)	13,424	357,733	21,866	20,802	81,026	210,493	70,739	27,394	75,204	34,043	89,276	74,269	1,076,270
Labour productivity	168.92	46.19	153.57	54.35	43.89	47.47	44.79	22.59	76.12	99.03	61.87	30.68	47.59
SMEs													
Employment	192,792	18,116,671	255,430	741,747	10,957,499	22,458,735	5,232,758	8,295,719	3,256,840	2,360,057	8,858,409	6,088,059	86,814,717
Value added (€mill)	26,346	706,511	47,991	43,096	399,822	759,056	205,363	154,019	191,037	203,905	435,802	222,433	3,395,383
Labour productivity	136.66	39.00	187.88	58.10	36.49	33.80	39.25	18.57	58.66	86.40	49.20	36.54	39.11
250+													
Employment	377,501	12,567,128	993,899	625,306	1,563,169	9,261,989	4,995,167	1,802,160	2,539,794	366,918	1,919,693	6,774,289	43,787,013
Value added (€mill)	54,400	885,516	154,745	45,235	85,575	354,144	243,355	44,950	309,997	29,308	125,940	162,762	2,495,926
Labour productivity	144.10	70.46	155.70	72.34	54.74	38.24	48.72	24.94	122.06	79.88	65.60	24.03	57.00
Total													
Employment	570,293	30,683,799	1,249,329	1,367,053	12,520,668	31,720,724	10,227,925	10,097,879	5,796,634	2,726,975	10,778,102	12,862,348	130,601,729
Value added (€mill)	80,746	1,592,027	202,736	88,331	485,397	1,113,200	448,717	198,969	501,034	233,213	561,742	385,196	5,891,309
Labour productivity	141.59	51.88	162.28	64.61	38.77	35.09	43.87	19.70	86.44	85.52	52.12	29.95	45.11

Sector codes are: B, "Mining and Quarrying", C, "Manufacturing", D," Electricity, Gas, Steam and Air Condition Supply", E, "Water Supply, Sewerage, Waste Management and Remediation Activities", F, "Construction", G, "Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles", H, "Transportation and storage", I, "Accommodation and Food Services", J, "Information and Communication", L, "Real Estate Activities", M, "Professional, Scientific and Technical Activities", and N, "Administrative and Support Services

Source: Eurostat, National Statistical Offices, DIW, DIWecon, London Economics, MIoIR

Table 18: Enterprises, Employment, Value added and Productivity by size class and sector, growth 2009-2012, and 2011-2012, EU-27

Enterprises													
	2009 – 2012	*B-N*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*L*	*M*	*N*
SMEs		1.9%	-6.6%	1.8%	59.4%	18.0%	-5.1%	0.6%	-7.6%	-1.4%	5.8%	7.3%	-0.6%	11.0%
Large		2.4%	-9.1%	1.9%	3.3%	6.0%	-2.7%	1.9%	-0.9%	7.9%	2.5%	2.1%	0.8%	3.4%
	2012													
SMEs		-1.8%	-7.2%	-3.1%	-2.3%	-5.0%	-10.2%	0.5%	-1.5%	2.1%	0.8%	-0.2%	-0.7%	2.0%
Large		0.7%	-10.4%	1.8%	-4.1%	-1.0%	-3.5%	-0.2%	-0.9%	2.3%	2.2%	2.9%	1.4%	1.2%

Employment													
	2009- 2012	*B-N*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*L*	*M*	*N*
SMEs		-0.9%	-7.9%	-0.5%	4.9%	8.5%	-10.1%	-1.2%	-3.0%	-0.4%	0.9%	3.1%	-2.5%	3.4%
Large		2.7%	-12.7%	3.2%	6.2%	8.7%	-8.6%	0.1%	-0.9%	9.4%	0.2%	-1.2%	3.3%	8.2%
	2012													
SMEs		-0.7%	-2.1%	0.3%	1.4%	-2.2%	-4.6%	0.1%	-1.1%	0.8%	-1.3%	0.9%	-0.5%	-1.6%
Large		0.4%	-4.6%	2.8%	2.7%	0.3%	-3.1%	-0.6%	-1.4%	0.3%	2.1%	2.7%	0.3%	-0.9%

Value added													
	2009- 2012	*B-N*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*L*	*M*	*N*
SMEs		5.0%	-0.9%	8.1%	-2.9%	13.6%	-5.4%	2.3%	2.3%	5.1%	6.9%	6.3%	8.5%	10.3%
Large		9.1%	20.4%	19.1%	-3.2%	14.2%	-4.9%	2.0%	3.5%	10.1%	3.6%	8.5%	5.3%	9.5%
	2012													
SMEs		-1.3%	-3.6%	-2.7%	0.5%	-1.3%	-3.1%	0.0%	-1.0%	0.5%	-2.0%	0.1%	-1.3%	-0.1%
Large		-0.3%	-0.8%	-1.1%	-0.9%	1.0%	-1.3%	0.3%	-1.5%	0.1%	2.6%	5.2%	1.0%	-2.6%

Productivity													
	2009 – 2012	*B-N*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*	*J*	*L*	*M*	*N*
SMEs		1.2%	6.0%	7.6%	8.7%	-7.5%	4.7%	5.2%	3.5%	5.5%	5.5%	5.9%	3.1%	11.2%
Large		6.3%	37.8%	15.5%	-8.8%	5.0%	4.0%	2.0%	4.4%	0.6%	3.4%	9.8%	2.0%	1.2%
	2012													
SMEs		-0.6%	-1.5%	-3.0%	-0.9%	1.0%	1.6%	-0.1%	0.0%	-0.3%	-0.7%	-0.7%	-0.8%	1.5%
Large		-0.8%	4.0%	-3.8%	-3.4%	0.8%	1.9%	0.9%	-0.1%	-0.1%	0.5%	2.5%	0.7%	-1.8%

Sector codes are: B, "Mining and Quarrying", C, "Manufacturing", D," Electricity, Gas, Steam and Air Condition Supply", E, "Water Supply, Sewerage, Waste Management and Remediation Activities", F, "Construction", G, "Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles", H, "Transportation and storage", I, "Accommodation and Food Services", J, "Information and Communication", L, "Real Estate Activities", M, "Professional, Scientific and Technical Activities", and N, "Administrative and Support Services

Source: Eurostat, National Statistical Offices, DIW, DIWecon, London Economics

Table 19: Long term trends of Enterprises, Employment, Value added and Productivity by SMEs sizes and sector, growth 2009-2012, EU-27

	Enterprises				Employment				Value Added				Productivity			
2009-2012																
	SMEs	Micro	Small	Medium	SMEs	Micro	Small	Medium	SMEs	Micro	Small	Medium	SMEs	Micro	Small	Medium
B-N	1.95%	2.04%	1.09%	-0.17%	-0.94%	-1.96%	-0.62%	0.42%	5.01%	5.30%	3.88%	5.81%	6.00%	7.41%	4.52%	5.37%
B	-6.58%	-6.33%	-7.39%	-6.75%	-7.92%	-7.72%	-7.58%	-8.34%	-0.92%	-11.89%	-6.20%	8.95%	7.60%	-4.52%	1.49%	18.86%
C	1.78%	2.37%	-0.93%	-0.51%	-0.49%	-0.65%	-1.63%	0.52%	8.12%	6.43%	6.48%	9.78%	8.65%	7.13%	8.25%	9.21%
D	59.36%	65.44%	3.30%	3.15%	4.95%	20.96%	3.64%	0.49%	-2.90%	8.39%	0.25%	-11.16%	-7.47%	-10.40%	-3.27%	-11.59%
E	17.96%	21.42%	5.29%	6.83%	8.50%	6.60%	4.99%	10.13%	13.60%	40.75%	13.68%	4.87%	4.71%	32.04%	8.27%	-4.78%
F	-5.12%	-5.22%	-3.25%	-8.98%	-10.09%	-11.53%	-6.89%	-11.67%	-5.39%	-4.57%	-2.76%	-11.22%	5.23%	7.86%	4.43%	0.51%
G	0.61%	0.46%	2.96%	0.51%	-1.17%	-3.27%	1.14%	0.86%	2.29%	1.15%	1.23%	5.30%	3.51%	4.57%	0.08%	4.40%
H	-7.59%	-8.22%	-1.29%	-0.88%	-3.00%	-7.20%	-0.82%	0.09%	2.35%	0.87%	2.88%	3.15%	5.51%	8.70%	3.73%	3.06%
I	-1.36%	-1.82%	3.68%	-2.14%	-0.42%	-1.22%	1.18%	-1.38%	5.06%	5.57%	5.83%	2.28%	5.50%	6.88%	4.59%	3.71%
J	5.78%	6.26%	-0.32%	-1.48%	0.88%	2.06%	-0.53%	0.73%	6.88%	8.20%	5.15%	7.24%	5.94%	6.02%	5.71%	6.47%
L	7.25%	7.33%	3.48%	4.81%	3.10%	4.77%	-3.39%	3.40%	6.33%	10.11%	-3.09%	1.81%	3.13%	5.10%	0.32%	-1.54%
M	-0.59%	-0.59%	-0.38%	-0.51%	-2.45%	-3.25%	-2.01%	-0.14%	8.50%	9.29%	6.73%	9.02%	11.23%	12.96%	8.91%	9.17%
N	11.02%	12.06%	-0.03%	4.47%	3.39%	4.18%	-0.40%	5.56%	10.29%	10.49%	9.08%	11.12%	6.67%	6.06%	9.52%	5.27%

Sector codes are: B, "Mining and Quarrying", C, "Manufacturing", D," Electricity, Gas, Steam and Air Condition Supply", E, "Water Supply, Sewerage, Waste Management and Remediation Activities", F, "Construction", G, "Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles", H, "Transportation and storage", I, "Accommodation and Food Services", J, "Information and Communication", L, "Real Estate Activities", M, "Professional, Scientific and Technical Activities", and N, "Administrative and Support Services

Source: Eurostat, National Statistical Offices, DIW, DIWecon, London Economics

Table 20: Number of SMEs, Employment and Value added, year-on-year percentage change, EU-27, FYROM, Serbia, Iceland and Norway

	Enterprises (Thousands)				Employment (Thousands)				Value added (Billion Euros)			
	2009	2010	2011	2012	2009	2010	2011	2012	2009	2010	2011	2012
EU-27												
SMEs	19,966	20,912	20,720	20,356	87,646	87,529	87,427	86,815	3,234	3,374	3,440	3,396
Annual % change	-1.43%	4.74%	-0.91%	-1.77%	-0.77%	-0.13%	-0.11%	-0.70%	-9.29%	4.34%	1.95%	-1.28%
FYROM												
SMEs	56.0	56.6	53.5	n/a	238.7	246.2	265.7	n/a	2.1	2.4	2.4	n/a
Annual% change	6.0%	1.1%	-5.5%	n/a	3.5%	3.2%	7.9%	n/a	2.0%	14.2%	-1.2%	n/a
SERBIA[a]												
SMEs	81.8	83.3	84.1	n/a	634.2	611.9	614.5	n/a	7.0	6.7	7.3	n/a
Annual% change	0.1%	1.8%	1.0%	n/a	-4.0%	-3.5%	0.4%	n/a	-14.2%	-4.5%	8.6%	n/a
ICELAND												
SMEs	29.3	26.6	25.4	n/a	75.7	72.3	71.7	n/a	4.5	4.2	4.2	n/a
Annual% change	-1.0%	-9.3%	-4.5%	n/a	-15.5%	-4.5%	-0.8%	n/a	-5.8%	-7.8%	0.5%	n/a
NORWAY												
SMEs	267.4	266.2	273.6	267.6	1003.6	996.3	1016.5	1006.4	116.9	131.2	127.0	127.4
Annual% change	-0.5%	-0.4%	2.8%	-2.2%	-1.3%	-0.7%	2.0%	-1.0%	-11.1%	12.3%	-3.3%	0.4%

Notes: All data relate to business economy, classified at NACE rev. 2 B-N aggregate.
"SME" aggregate is the aggregation of:"Micro" Enterprises (0-9 employees), "Small" Enterprises (10-49) and "Medium" Enterprises (50-249). "Large" Enterprises are those employing 250 employees and above.
(a): Value Added figures for Republic of Serbia are denominated in Billion Serbian Dinars.

Source: Eurostat, National Statistical Offices, DIW, DIWecon, London Economics

Table 21: Number of SMEs, Employment and Value added, year-on-year percentage change, EU-27, USA, Japan, Russia, Brazil and India

	Enterprises (Thousands)					Employment (Thousands)					Value added (Billion Euros)				
	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012	2008	2009	2010	2011	2012
EU-27															
SMEs	20,256	19,966	20,912	20,720	20,356	88,324	87,646	87,529	87,427	86,815	3,565	3,234	3,374	3,440	3,396
Annual % change		-1.43	4.74	-0.91	-1.77		-0.77	-0.13	-0.11	-0.70		-9.29	4.34	1.95	-1.28
USA (a)															
SMEs	4181.1	4031.4	3990.1	n/a	n/a	38462.1	35645.2	34490.5	n/a	n/a	3152.7	3048.5	3471.1	3447.3	n/a
Annual % change	-	-3.60	-1.00	n/a	n/a	-	-7.30	-3.20	n/a	n/a	-	-3.30	13.90	-0.70	n/a
Japan (b, c)															
SMEs	n/a	1578.4	1535.8	1515.3	1494.8	n/a	19934.5	20096.6	19870.1	19643.5	n/a	n/a	n/a	n/a	n/a
Annual % change	n/a	-	-2.70	-1.30	-1.40	n/a	-	0.80	-1.10	-1.10	n/a	n/a	n/a	n/a	n/a
Russia (d, e)															
SMEs	1242.6	1468.5	1574.6	1680.7	n/a	11575	11511	11451.2	11391.5	n/a	n/a	n/a	n/a	n/a	n/a
Annual % change	-	18.20	7.20	6.70	n/a	-	-0.60	-0.50	-0.50	n/a	n/a	n/a	n/a	n/a	n/a
Brazil (f)															
SMEs	4077.2	4257.5	4505.9	n/a	n/a	22102.1	23147.4	24818.1	n/a	n/a	358.7	366.8	508.4	n/a	n/a
Annual % change	-	4.40	5.80	n/a	n/a	-	4.70	7.20	n/a	n/a	-	2.30	38.60	n/a	n/a
India (g)															
SMEs	11559.9	11751.8	11966.5	12251.2	n/a	33589.2	34383.7	35274.6	36478.6	n/a	n/a	n/a	n/a	n/a	n/a
Annual % change	-	1.70	1.80	2.40	n/a	-	2.40	2.60	3.40	n/a	n/a	n/a	n/a	n/a	n/a

Notes:
Data relate to business economy, classified at NACE rev. 2 B-N aggregate unless otherwise specified.
No data available prior to 2008 and after 2011.
n/a: data not available
-: base year
(a): Size class definition for the USA: "SME" aggregate is composed of: Micro (0-9), Small (10-49), Medium (50-299)."Large":300+.
(b): Data for Japan is incomplete and lacks observations for sector B, D, E, N in years 2010,2011 and 2012.
(c): Size class definitions for Japan: Manufacturing SMEs up to 300 employees, Large (300+); the definition of SMEs services other than retail is less than 100 employees, in retail an SME is defined as employing less than 50 employees.
(d): Data for Russia is registered at NACE Rev. 1.1, and includes sectors C to K.
(e): Size class definitions for Russia: Micro (0-15), Small (16-100), Medium (101-250), Large (250+).
(f): Data for Value Added for Brazil are incomplete: sectors included in the computation are B,C,D,F,G,H,J,L
(g): Data for India is missing for sector N