

Financial Constraints and Small and Medium Enterprises: A Review*

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We review the literature on financial constraints and the performance of small and medium enterprises (SMEs). We consider the important role that SMEs play in the economies of Australia and the OECD. We examine the role of financial constraints in SME growth, with emphasis on business cycles and credit access. We discuss issues that SMEs face in accessing financial resources for expansion. We look at the literature that evaluates the impact of financial constraints on key outcomes: employment, productivity and wages. We review key policy debates and consider where government involvement might be appropriate.

1 Introduction

In Organisation for Economic Co-operation and Development (OECD) countries, small and medium enterprises (SMEs) account for a significant part of the private sector and constitute 50–60 per cent of value added (OECD, 2019a). SMEs have played an important role in job creation and

economic dynamism. They serve as an engine of job creation (Birch, 1987; Neumark *et al.*, 2011; Ayyagari *et al.*, 2011) and are seedbeds for developing entrepreneurial talent and innovation (Acs & Audretsch, 1987; Acs *et al.*, 1994; Brunswicker & Vanhaverbeke, 2015). Small businesses are flexible in keeping up with changing markets, responsive to new opportunities and quicker to adapt to capture economic upswings than large firms.

However, these economic benefits can only materialise if small businesses survive and thrive. Access to finance is often cited as an important factor in the survival and growth of small businesses. The lingering effects of the global financial crisis (GFC), persistent financial instability and diffused risk in credit markets are putting downward pressure on job creation and income security in Australia and many OECD economies. Together, they suggest the need to reconsider the impact of firms' access to financial resources and its relationship to labour market

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outcomes. Policies designed to guide and support employment and competitiveness while preserving financial stability need to be based upon a knowledge of the effect of firms' financial constraints on employment, wages and growth. This knowledge will be key in effectively targeting interventions for firms whose success is held back by lack of financing.

This paper surveys recent advances in the literature on the channels through which firms' financial conditions impact workers. We focus on small and medium enterprises (those with less than 250 employees) in Australia and other major OECD economies. While there is a literature on developing country assistance to small businesses, notably through micro-finance, our focus on OECD countries is driven by a recognition that the experiences of OECD countries will be most useful for designing policy in Australia. We summarise and analyse the conclusions from the growing literature on the effect of firms' financial conditions on employment, productivity and wages.

The rest of the paper is organized as follows. Section II reviews the role of SMEs in OECD economies. Section III discusses the role of financial constraints for SMEs in the context of business cycles and economic crises. Section IV illustrates the impact of limited access to financial resources for SME growth and development. Section V focuses on the effect of SMEs' financial constraints on key labour outcomes: employment, wages and productivity. Section VI reviews key policy debates. Section VII is a brief comment on the insights from the paper that can be applied to policy-making in this area in the context of the Covid-19 pandemic. Section VIII concludes.

II The Role of SMEs: An OECD Picture

SMEs, those firms with fewer than 250 employees, constitute the bulk of the businesses in OECD countries (Table 1). Even when excluding sole traders and firms that have no paid employees, over 99 per cent of firms are SMEs in most OECD countries. Germany has the lowest proportion of small firms, at 97.6 per cent. Across the OECD, SMEs contribute between 50 and 60 per cent of all value added (OECD, 2019a).

Among OECD countries, Australia has one of the highest proportions of SMEs. The SME sector combines a wide range of firms, even in terms of size. In Australia, for instance, it includes 2.182 million small firms, defined as those with fewer than 20 employees. These firms made up the bulk of the

TABLE 1
SMEs as a Proportion of All Total Businesses, by Country, 2017. Statistics Exclude Non-employers

Country	Count		Percentage SMEs
	All Firms	SMEs	
Germany	190,541	186,044	97.6
Switzerland	20,050	19,679	98.1
Austria	25,477	25,003	98.1
Russia	35,6867	352,735	98.8
Hungary	50,809	50,357	99.1
Iceland	2,106	2,090	99.2
Croatia	19,539	19,373	99.2
Estonia	7,507	7,445	99.2
Norway	17,001	16,886	99.3
Lithuania	20,268	20,131	99.3
France	197,657	196,272	99.3
Slovenia	19,376	19,260	99.4
Spain	168,717	167,870	99.5
Turkey	391,024	389,046	99.5
Sweden	53,674	53,388	99.5
Netherlands	66,662	66,339	99.5
Latvia	10,921	10,869	99.5
Portugal	67,555	67,261	99.6
Slovakia	72,563	72,260	99.6
Australia	125,035	124,512	99.6
Cyprus	5,024	5,015	99.8
Greece	57,373	57,243	99.8
Malta	2,146	2,146	100

Source: OECD Structural and Demographic Business Statistics

2.234 million SMEs in 2016–17. A substantial proportion of these small firms are family-owned and many are operated by sole traders and thus are not legally distinct from their owners.

A subcategory of small firms within the SME group is 'micro-firms', those with fewer than 5 employees. Within these micro-firms, one further finds a large population of sole traders and non-employers (firms with no paid employees).¹

¹ The Australian Bureau of Statistics (see <https://www.business.gov.au/planning/business-structures-and-types/business-structures/sole-trader>) states that 'A sole trader business structure is a person trading as the individual legally responsible for all aspects of the business. This includes any debts and losses, which can't be shared with others. This is the simplest, and relatively inexpensive business structure that you can choose when starting a business in Australia. As a sole trader, you'll generally make all the decisions about starting and running your business, although you can employ people to help you.'

Because non-employers, small firms and medium-sized firms respond differently to government policies and stimuli, one might want to study them separately, depending on the research question. For example, most government assistance programs in Australia are unavailable to non-employers, hence that group can be excluded from policy evaluations without any loss of generality.

Regardless of size, there is a large international literature on the important contribution made by SMEs to job creation (Moscarini & Postel-Vinay, 2012; Haltiwanger *et al.*, 2013; De Wit & De Kok, 2014).

This is clearly the case in Australia as well. The SME sector is Australia's largest employer. The small-business sector in Australia, by itself, employed around 4.8 million people at the end of June 2017 (up 66,000 or 1.4 per cent compared with the previous year). Small businesses are responsible for 44 per cent of total employment, 35 per cent of total industry valued added (IVA), and 34 per cent of sales and services income. However, small businesses pay only 28 per cent of total wages and salaries (see Gilfillan, 2018; Australian Bureau of Statistics (ABS) Cat. No. 8155.0). The small-business sector in Australia is more likely to employ casual workers and tends to pay them less than other sectors of the economy (Gilfillan, 2018). This accords with the evidence that SMEs have lower labour productivity than large firms. This would appear to be particularly true for the smaller firms in the SME category.

The ABS reports that medium-sized businesses in Australia (51,027 companies with 20–199 employees) employ almost 2.5 million people. Despite being much smaller in number, these firms generated 22 per cent of the IVA and paid about 28 per cent of the wages and salaries (ABS Cat. No. 8165.0).

The gap in productivity between SMEs and large firms is large, not just in Australia but across many of OECD countries (OECD, 2019a). Because of the role played by capital investment and economies of scale in manufacturing, these gaps are wider in manufacturing than in services (OECD, 2019a, p. 34).

Both internal and external factors contribute to labour productivity in SMEs: managerial skills and management practices, workers' training, information and communications technology and digitalisation, network activities including participation in clusters and global supply chains, and of course innovation, including through

research and development (R&D) investment. Access to finance is cited as an important enabler of productivity-enhancing investments in all of these areas (Czarnitzki & Hottenrott, 2011). For example, using firm-level data from Bureau van Dijk's Amadeus database, Ferrando and Ruggieri (2018) study the relation between firms' financial structure, access to external finance, and total factor productivity in several euro area countries in the period 1995–2011. After controlling for the endogenous relationship between labour decisions and productivity innovations, they find an elasticity of total factor productivity with respect to financial constraints of -0.18 per cent.² The estimate is statistically significant and quite large. The elasticity is larger for small, young, and private companies. Moreover, the effect is persistent over time: lagged financial constraints affect current total factor productivity. The elasticity also appears to have become larger during the recent financial crisis.

Cross-country studies on the interrelation between economic performance of small and large firms are scarce. However, the existing literature suggests that an 'optimal' industry structure exists in terms of the SME share in economy-wide value added, and that deviations from this optimum come at a cost of forgone economic growth. Studies that focus on the dynamic interaction between productivity increases of SMEs and large firms are useful in addressing these questions (e.g. Carree & Thurik, 1998; Audretsch *et al.*, 2002).

Focusing on labour productivity spilling over from SMEs into larger firms and the aggregate economy, van Stel *et al.* (2019) empirically investigate the relative importance of channels such as knowledge spillovers, competition effects and the provision of high-quality intermediate goods and services in 26 member states of the European Union for the period 1997–2015. Their analysis shows that a 1 per cent increase in SME productivity increases the productivity of large firms by 0.124 per cent. The impact of a 1 per cent increase in SME productivity on total (economy-wide) productivity growth is 0.63 per cent. The spillover productivity effect from SMEs to larger firms is considerably stronger for countries with a bigger share of SMEs in the economy.

² Ferrando and Ruggieri (2018) build a synthetic (continuous) indicator which spans different dimensions of the firm which are related to the presence of financial constraints

In terms of creativity, 70 per cent of businesses with 200 or more employees were innovation-active in 2016–17, compared to 36 per cent of businesses with 0–4 persons employed in the same year (ABS Cat. No. 8166). Innovation by small young firms, in particular, is an integral part of the creative destruction process. In Sections III and IV below we explore the role of SMEs in innovative activity.

In summary, SMEs claim an important chunk of economic activity in most OECD economies, making up the vast majority of firms and accounting for a sizeable amount of employment and value added. However, they have lower productivity, and this is at least partly due to financial constraints. SME productivity is an important issue both because of its importance in the economy and because of the role SMEs play in the creative destruction process and the spillovers they generate for large firms and economy-wide productivity.

Next, we turn to an assessment of the role of access to finance in the success or failure of SMEs.

III SMEs and Access to Finance

Determining which factors support or hinder SME performance is an important policy question for most OECD countries. Many countries have explicit policy objectives towards creating a supportive business environment for SMEs with the objectives of increasing firm performance and employment creation. While there are many elements to a supportive business environment, considerable research has identified access to finance as a core constraint on SME performance (Holton *et al.*, 2013).

Numerous studies have documented that SMEs are more financially constrained than large businesses. (We discuss the measurement of financial constraint in Section III.i.) But why do financial constraints present such a challenge for small businesses? There are a variety of reasons, one of which is the ability to deal with financial need through some type of internal reallocation. Unlike large firms, which can internalize many of their financing needs through capital reallocation, SMEs have to rely primarily on external financial resources (Beck & Demirguc-Kunt, 2006).

The root of the problem is that capital markets are imperfect and information is not, or cannot be, fully shared between all agents. Akerlof (1970), and later Stiglitz and Weiss (1981) among others, contemplated the implications of information

asymmetry for the type of transactions that can take place and foresaw the possible path to market failure. In the market for financing, in particular, a firm's owner or manager has a better understanding of the value and the probability of success of the investment project that the firm is undertaking. Investors, on the other hand, cannot do a proper evaluation and have to assume that there is some probability that the project is a *lemon*. The perception of risk pushes investors to raise the cost of lending, creating a wedge between the cost of internal and external financing. Under such conditions, firms might decide not to seek external financing and rely on internal resources only (see Myers & Majluf, 1984).

In this setting, size matters. Larger and more mature firms are less affected as they have a past history that can mitigate investors' concerns. Large firms also have larger tangible assets which can act as collateral. Having collateral is shown to provide better access to financial markets (Almeida & Campello, 2007). Small, young firms, on the other hand, lack a history and sizeable assets. These firms feel the full brunt of market frictions (Carpenter & Petersen, 2002).

These problems are aggravated when the firm is facing financial constraints. Lack of internal funds puts a strain on firms facing financing issues. As a result, the decision to invest and the amount of investment in these firms is sensitive to their internal finances. Fazzari *et al.* (1988) and Fazzari and Petersen (1993) test this theory using firms' internal cash flow and working capital, respectively, as proxies for financial constraint. They find that the firm's decision to invest in capital is sensitive to both cash flows and working capital.

In many cases, inefficient credit markets and lack of appropriate financing instruments leave the small players no other choice than to seek informal financing, which increases the potential financing risk and may further worsen the binding financial condition. This issue is more acute in developing countries where a thriving shadow banking sector competes with formal sector lenders.

In addition, without adequate production capacity to weather macro-environment fluctuations, small businesses appear to be more susceptible to financing difficulties induced by falling demand (Cowling *et al.*, 2015). Further, the initial sunk cost in business set-up pushes small firms to delay additional investment before the viability of the start-up becomes relatively

certain (Cabral & Mata, 2003). Both issues will be discussed in more details in Sections III.ii and IV.iv.

These issues aggravate the financial constraint situation that small businesses face during the early years of existence and hamper their survival and growth. Studying the impact of financial constraints on business dynamics must be based on these features of SMEs. Next, we discuss varying approaches in the literature to measuring financial constraints.

(i) *Measuring Financial Constraints*

We turn now to a brief discussion of the measurement of financial constraints. Papers have used the wedge between the costs of using external and internal funds (see, for example, Kaplan & Zingales, 1997), the cash-flow sensitivity of investments (Fazzari et al., 1988) or a firm's cash flow (Carpenter et al., 1998; Chapman et al., 1996).

Cash-flow sensitivity of investments may not be a good proxy for financial constraints as a number of studies have found evidence that constrained firms' investments are less sensitive to cash flow (Carreira & Silva, 2010). This argument is supported by Kadappakam et al. (1998) and Cleary (1999). Almeida and Campello (2007) draw similar conclusions. Dasgupta and Sengupta (2007) find that the response of investment to cash-flow shocks for Japanese firms is non-monotonic, further lending support to Kaplan and Zingales (2000) and Cleary (1999).

Other studies have suggested using an *a priori* firm classification or constructing indexes that allow one to measure the degree of constraints that, in their turn, use proxies such as dividend payout ratio, firm self-evaluation, cash stocks, degree of leverage, age and size, institutional affiliation, and credit ratings. All of these items have been shown in previous empirical studies to be strongly correlated with the presence of financial constraints.

(ii) *Economic Downturns and SME Financing*

Financial constraints affect SME growth and survival through two channels during economic instability. Unlike large companies, which are better placed to absorb cyclical fluctuations in demand, small businesses are more vulnerable to swings in revenue growth. This is especially true during economic downturns when business revenue decreases and the demand for external

finance increases. Smaller businesses may also lack the competitive advantage in production and market presence that their larger counterparts enjoy. As a result, these firms, when financially constrained, might find it more difficult to survive.

A second problem is that financial constraints also arise from higher financing costs charged by potential lenders to compensate for the risk associated with economic decline. This falls particularly hard on small firms. The already limited access to financial resources becomes even worse for small firms, and credit denials drive more small enterprises to exit the market.

Cowling *et al.* (2012) provide supporting evidence by constructing a UK longitudinal SME data source running from the pre-recession (2007–8) to the post-recession years (2008–10). They particularly analyse how credit demand and supply changed during the recessionary period as compared with the pre-recession time. They find that businesses experiencing growth stagnation or revenue decline during a recession are more likely to increase demand for credit. However, only the larger and older firms succeed in accessing capital; the smallest firms were completely cut off from all financing sources for three months. The authors also point out the failure of lending institutions to facilitate economic recovery by ignoring the growth and economic stimulating potential of micro-enterprises and blocking them from obtaining additional finance. Expanding the argument along these lines, Cowling *et al.* (2015, 2018) highlight the performance and growth potential of SMEs after the recession. They find that entrepreneurs' confidence recovers faster than large firms coming out of the recession. Moreover, young firms remain resilient in their rapid growth.

Similarly for the UK, North *et al.* (2013) discuss the impact of financial collapse on technology-based small businesses. Due to the nature of innovation and R&D intensity, these firms are financially more restricted than others. The study documents that external financing is especially difficult to access during periods of macroeconomic stagnation or volatility. Even when financing is available, the terms and conditions set by lenders are hard for small enterprises to accept. All of these are reported to hamper the growth potential of small firms. Other studies on innovative SMEs over the financial crisis yield similar insights.

Again for the UK, using a data set of more than 10,000 SMEs, Lee *et al.* (2015) examine the differential impacts of the financial crisis on credit access for innovation-intensive and non-innovation-intensive firms. They find that small enterprises with high innovative intensity have a higher chance of being turned down when seeking external financing than less innovative small firms. This disadvantage for innovative firms grows during the crisis. Yet, Bartz and Winkler (2016) tell a slightly different story with German data. In their study, small firms with limited resources appear to be able to mobilise additional funding during the financial crisis and do not appear to have lower growth. The authors suggest that fast-growing small firms maintain their advantage during this economic turmoil. The paper also points out the peculiarities of the German economy, such as the lending traditions in the banking system and the government's strong liquidity support to banks. These differences may have acted to protect small businesses from negative impacts of the crisis.

De La Torre *et al.* (2010) document competing evidence with bank survey data covering 12 emerging markets from both developed and developing countries. Their results suggest that the majority of SME financing comes from the broad range of services provided by large banks rather than relationship lending from small and niche banks, and that this pattern has not been affected by the GFC.

Other work has looked at the aggravating effect of business cycles and financial shocks on financially constrained firms. Duchin *et al.* (2010) use the GFC in the USA, while Goyal and Yamada (2004) look at Japan's asset bubble burst in the 1990s. Both demonstrate that financially constrained firms had a more sensitive response during the business cycles than other firms. Studies on the SME financing–growth relationship at specific periods of economic disequilibrium are still limited to evidence obtained from a few countries and the results are inconclusive. The GFC in 2007 exposed the world's economies to great economic challenges. A comprehensive understanding of how economic fluctuations affect the financing–growth nexus and a thorough assessment of the potential damage it might have had post-crisis on available financing options for small businesses requires more empirical evidence.

IV Financial Constraints and SME Survival and Growth

The ability of SMEs to effectively contribute to the economy with their unique advantages is conditional on firm survival. However, it is well known that the SME sector is plagued by low prospects of firm survival. About 20 per cent of start-ups exit the market within the first year of entry and more leave in the following year. Only a small fraction move on to a path of fast growth (OECD, 2005; Bartelsman *et al.*, 2005). In Australia, 24 per cent exit in the first 3 years, and only 39 per cent of new firms eventually reach the age of 10 (Bakhtiari, 2019a).

Many external and internal factors determine the short life expectancy of small enterprises or prevent them from growing to their optimal size. These include, but are not limited to, financing obstacles, taxation, regulation, corruption, crime, early international expansion, and deficient management skills (Schiffer & Weder, 2001; Beck & Demircuc-Kunt, 2006; Lee *et al.*, 2012). With international evidence from OECD countries, lack of access to external finance has been shown to be the most direct and robust determinant of firm dynamism among SMEs (Pissarides, 1999; Beck & Demircuc-Kunt, 2006; Zehir *et al.*, 2006; Ayyagari *et al.*, 2008; Bridges & Guariglia, 2008; Gill & Biger, 2012).

(i) Financial Services and SME Dynamics

Reviewing the effects of financial constraints on entry, survival and growth of SMEs is inseparable from understanding the financing environment in which SMEs seek funding support and the financial resources available to the firm. Existing research indicates that improving the financial environment is the most effective way to facilitate businesses passing through the growth restrictions induced by financial constraints (Beck & Demircuc-Kunt, 2006).

Financial intermediaries play an important role in determining the degree to which financial constraints negatively impact on SMEs. Whether such intermediaries help or hurt firm liquidity depends in part on the level of development of the financial service system. There is a substantial literature that suggests that a developed financial service system can relax the financial constraint. An underdeveloped financial service system, on the other hand, can only aggravate the credit constraints that SMEs face.

With survey data from central and eastern European countries, Pissarides (1999) highlights the importance of credit constraints in hindering growth of the SME sector, and attributes it to the underdeveloped local financial system and the lack of appropriate financing instruments tailored to small businesses. Schiffer and Weder (2001) also document that smaller firms frequently list liquidity constraints as the major obstacle of operation and growth in the World Business Environment Survey. Based on a sample of more than 200 SMEs in Slovenia, Bukvic and Bartlett (2003) further point to the high financing cost (e.g. cost of credit and loans, bank collateral requirements, alongside other bank charges and fees) as the key financial barriers to SME growth. It is the same story with Australian small businesses where access to finance, especially for innovation, tops the list of challenges they face (Australian Small Business and Family Enterprise Ombudsman, 2019).

The financing channel not only can hamper growth, but in some cases may be used as a tool to generate an entry deterrence for new small business. Cestone and White (2003) provide a theoretical framework on a mechanism where incumbents' choice of financial instruments deters the entry of others, suggesting that the existing lending relationship can manipulate the behaviour of potential investors towards new entrants. This financial barrier to newcomers is even more important when the credit market is less competitive (Cetorelli & Strahan, 2006).

The above studies concentrate on either a single country or nations in similar economic development circumstances. To accommodate sufficient variation in the level of financial development, cross-country comparisons can shed light on the implications of an improved credit market for SME finance in developed countries.

With a data set covering 54 developing and developed countries, Beck *et al.* (2005) document that financial and institutional development significantly ameliorate the financial obstacles faced by small businesses. Moreover, Beck *et al.* (2008a) exploit the full range of financing choices faced by large and small businesses, and find that property right protection greatly promotes SMEs' success in obtaining bank financing. Using a cross-country sample on industries from the manufacturing sector, Beck *et al.* (2008b) identify that financing development significantly benefits the growth of industries more dependent

on SMEs. With data on SMEs from the European information and technology industry, Moreira (2016) confirms the contribution of widened credit accessibility on the growth of SME.

(ii) SMEs, Access to Credit and Innovation

The problem of access to financial resources is more acute for SMEs planning to invest in R&D and innovation projects. The risks involved in R&D and innovation and the uncertainty of outcomes and doubts about the commercial success of the end product increase the size of the wedge between the cost of internal and external finance. The matter is made worse by the lack of complete appropriability of the returns due to knowledge spillovers.

Himmelberg and Petersen (1994) use a small panel of small-sized high-tech firms and show that R&D investment in these firms is as sensitive to internal finances as the decision for general capital investment, if no more so. A similar sentiment is echoed in the literature on R&D investment where small young firms are shown to face much more difficulty in attracting investment for R&D and innovation, whereas larger firms are mostly unaffected (see, for example, Westhead & Storey, 1997; Freel, 2007; Hall & Lerner, 2010).

(iii) The Role of Informal Financing Resources

During their early years of existence, SMEs might be under-served by capital markets and formal financial institutions. Business owners are forced to rely on self-financing, borrowing from family members or friends, or trade credit, along with other informal financing methods. For instance, in Slovenia the data suggest that more than two thirds of small businesses finance over half of the start-up capital with their own savings (Bukvic & Bartlett, 2003).

In the face of severe financial distress, informal financing could save businesses from exiting and the reputation built in the informal financial market may contribute to successful financing in the formal credit market in the future. Thus, a stream of literature investigates the SME financing-survival/growth nexus through the lens of informal financing.

Evans and Jovanovic (1989), in the context of US household labour surveys, point to the underlying reasons why wealthier people tend to be more successful in starting businesses due to the larger amount of initial capital at their disposal. Their paper provides early empirical evidence on

how access to sufficient self-financing determines the survival prospects of business start-ups.

Holtz-Eakin *et al.* (1994) examine entrepreneurial business growth using US federal income tax return data. By exploiting the bequest-induced increase in the available capital for entrepreneurs, the authors find that the substantial financial windfall from inheritances contributes to the growth of small businesses. Inheritances play two roles. First, they make it more likely for a small business to be started. Second, conditional on survival, they contribute to business growth through an extra capital injection.

Woodruff (2001) documents that informal credit and trade credit are much more common sources of financing than formal external finance for Mexican start-ups. Micro-enterprises located in states with higher emigration rates to the USA tend to receive more informal loans, which suggests that remittances are an important capital source and might affect micro-business development.

Again using Mexican data, Hernández-Trillo *et al.* (2005) compare the formal and informal financing sources available to small businesses and find that formal financial sources appear to invest in more efficient businesses than the informal instruments, providing a screening and monitoring function for micro-enterprise. Furthermore, Severin *et al.* (2004) explore the possible complementarity between bank loans and trade credit. Using US small-business data, the study concludes that informal financing helps small enterprises build reputation and signal business quality, which facilitates their subsequent access to formal financing sources.

(iv) Sunk Cost and SME Dynamics

Another source for SMEs' susceptibility to financial constraints is from the high degree to which the costs of establishing productive and technological capacities are sunk costs (Cabral, 1995). Sunk costs and uncertainty about viability drive new entrants to delay further investment until the start-up shows signs of profitability. This magnifies the binding financial constraint issue for small firms in the early years of existence (Cabral & Mata, 2003; Bartelsman *et al.*, 2005). Moreover, a lack of scale economies makes it impossible for small businesses to compensate for the sunk cost with reduced average costs for production and transactions. High expenses incurred by small businesses on entry become

another detrimental factor to SME survival and growth.

Fonseca *et al.* (2001) provide evidence from an OECD perspective on the relationship between initial set-up cost and business development by testing the effect of business start-up costs on owners' employment decisions. The results indicate that higher set-up costs discourage owners from hiring workers, thus hampering small-enterprise development. The authors also provide a theoretical explanation about how high initial start-up costs lead to fewer entrepreneurs and more paid workers in a market. People choose to enter the market as employees rather than as business owners.

Using data from 36 different developed and developing economies, Gschwandtner and Lambson (2002) find suggestive evidence that higher sunk costs lead to more stability in the incumbent firms – that is, less entry and exit but also higher survival rates for existing firms, large and small. In contrast, based upon within-country investigation with a panel data set covering an extended 30-year period for US manufacturing industries, Ghosal (2007) finds that higher sunk costs create profit uncertainty and this uncertain profitability leads to a lower chance of small-business survival. He examines in some detail the effect of sunk-cost-induced profit uncertainty on firm survival and the distribution of firm size. The result is supportive of the notion that higher sunk costs lower the survival probability of small firms; large incumbents are less affected. The overall impact on firm size distribution means a bias towards large firms as more attrition takes place among small firms due to the sunk costs.

Concentrating on a UK panel of SMEs, Requena-Silvente (2005) examines the relationship between sunk costs and firm dynamics in the context of foreign market participation. Based on the previous literature, the paper extends the definition of sunk business set-up costs to refer to outlays associated with obtaining overseas market information and establishing distribution networks. Hence, it regards the firm's exporting choice as the overseas market entry and exit decision. The conclusion drawn is that sunk start-up costs contribute to SMEs' opting to continue business in the foreign market, but the effect falls as the firm ages.

V SME, Financial Constraints and Employment

Despite the generally more stable financial conditions in recent years, the overall economic

FIGURE 1
Variable Interest Rates Charged to Small and Large Firms.



Source: Reserve Bank of Australia (RBA) F5 statistics

recovery from the GFC has been slower in some OECD areas than in others, causing difficulties in SMEs' access to financial resources, particularly in fragile economies (e.g. Italy and Hungary). In Australia, the gap between the lending rates to small and large businesses constantly grew from 2002 to 2018, a trend that accelerated following the financial crisis. By 2018, small firms were being charged almost double the interest rate charged to larger firms on their loans (Figure 1).

Understandably, one of the countries most affected by the GFC was the USA. Lending to US small businesses fell dramatically after the onset of the recession. Duygan-Bump *et al.* (2015) find that during the GFC workers were more likely to become unemployed if they worked in sectors with high external financial dependence. In these sectors the impact of the recession on the likelihood of becoming unemployed was stronger for workers in smaller firms.

Other papers in the literature have established an even stronger role for credit constraints in investment and employment decisions in the USA (Duchin *et al.*, 2010) and in Ireland (Gerlach-Kristen & Merola, 2019). Siemer (2019) finds that employment declined substantially during the

2007–9 recession in the USA, especially in small and young firms. Using confidential firm-level data on the universe of firms from the Census of Employment and Wages data and a difference-in-differences methodology, this paper estimates that financial constraints reduced employment growth by 4–8 percentage points in small firms relative to large firms and by 7–9 percentage points in young firms relative to old firms.

Berton *et al.* (2018) analyse the employment effects of financial shocks using a rich data set of job contracts, matched with the universe of firms from administrative data and their lending banks in one Italian region (Veneto). Their preferred estimate indicates that the average elasticity of employment to a credit supply shock is 0.36. Adjustment affects both the extensive and the intensive margins and is concentrated among workers with temporary contracts.

Not surprisingly, difficulties in accessing credit are often cited among the challenges for firms' competitiveness, employment growth and job quality in Australia (Debelle, 2010; CPA Australia Asia-Pacific Small Business Survey, 2012). Evidence shows that constrained firms tend to plan deep cuts in employment, as well as in

capital spending (Campello *et al.*, 2010). In the OECD countries, the effect of credit constraints on workers appears to be worse for those in part-time or casual employment (McDonnell & Burgess, 2013).

Overall, this literature suggests that there are two issues in the financial system. First, there is evidence of a structural problem which restricts access to finance for small and medium-sized firms. Second, cyclical problems, often associated with financial crises, impact relatively more severely on small and medium-sized firms.

(i) Wage and Productivity Effects

Wages and productivity are often referred to interchangeably, and labour productivity in many papers is proxied with wages (Castillo *et al.*, 2014). Therefore, evaluating the impact of financial constraints on wages and productivity is not always straightforward.

Tan (2009) employs data over a period of 14 years from a random sample of Chilean SMEs to study financing support intervention. The random selection and the long duration of the panel data result in a relatively clean identification for the study. The finance program in Tan (2009) shows a positive effect on wages and labour productivity in the medium term (4–5 years). Benavente *et al.* (2007) use a shorter time period to study the same program and find no effect of significant change. The studies point to heterogeneous impacts across different lines of finance, so the two sets of results are not necessarily inconsistent. Credit guarantees appear to be the least effective way to spur firms' productivity and more targeted financing projects appear to better aid firm technological development.

Evidence from Lopez-Acevedo and Tinajero-Bravo (2010) in Mexico also suggest important heterogeneity in outcomes. They use 10 years of data, control for selection and study a relatively short period post-program in their evaluation. While their results are not indicative of a robust effect from a credit-relaxing program on wage increases, they do show significant influences on other dimensions of SME performance and employment.

Similar conclusions can be drawn on productivity with evidence from South Korea. In the aftermath of the Asian financial crisis, the Korean government adopted a credit guarantee policy to promote SME development. Oh *et al.* (2009) conclude that this policy change is associated

with growth in employment, sales and wages. However, this study does not support a definitive relationship between the policy and productivity changes in recipient firms.

Garcia-Tabuenca and Crespo-Espert (2010) investigate the impact of traditional SME-support programs in Spain and show that improved credit access facilitated by the supporting guarantee system is associated with productivity gains. The findings highlight that the weakest firms are those that benefit the most from the guarantee support.

In conformity with those findings, Asdrubali and Signore (2015) provide further evidence with data from a wide range of European countries in the period 2005–12. Their study finds positive and relatively large effects of guarantee programs on SME beneficiaries' employment, production, profitability and productivity in the five years following the issuance of a guaranteed loan. Again, micro and young SMEs benefit the most from the guarantee programs.

Michelacci and Quadrini (2005) analyse the effect of financial constraints on firms' compensation structure. They suggest that financially constrained firms pay lower wages in exchange for higher future wages, effectively borrowing from their employees.

One well-documented area in the financial constraint literature is the effect on firm innovation and productivity. Since innovative activity and productivity change go hand-in-hand, financial subsidies on R&D activities can have implications on SMEs' productivity by relaxing their budget constraint related to innovative activity. Özçelik and Taymaz (2008) examine this relation with data from the manufacturing sector in Turkey. The results indicate that public R&D loans and grants generate a crowding-in effect on firms' R&D intensity and boost firm productivity accordingly. Caggese (2019) provides new empirical evidence on the negative relationship between financial frictions and productivity growth over a firm's life cycle. Financing frictions matter for the overall degree of competition in an economy because they act as a barrier to entry that reduces competition and the risk-taking of young firms.

Though many of the existing studies show a strong relationship between SME productivity increases and access to finance, many others suggest that impacts on SME wage and productivity are quite mixed. Some studies even criticise the efficiency and legitimacy of loans and credit guarantee schemes because they may support

entry to market of some unqualified entrepreneurs (De Meza, 2002), and they might impact on the long-term development of the SME sector by making these firms highly dependent on government support (Oh *et al.*, 2009). We know that the exit of underperforming firms is a key aspect of aggregate productivity increases, and support programs to SMEs may prevent those (unproductive) firms that ought to exit from exiting.

In summary, there is no wide-reaching consensus in the literature and more rigorous evaluation of government programs which are designed to improve access to credit for small firms is required.

VI A Policy View

The lacklustre growth across global economies that followed the GFC has put job creation and growth high on the agenda in most countries and especially in the industrialised countries. Stagnating wage growth and a falling labour share of production are adding to pressure on policy-makers to take action. Access to finance is one effective way of improving the job market outcomes without direct intervention which could be distortionary and misguided.

There is in fact much scope for policy action. For one thing, SME financing has not improved

even as economies have recovered from the shock of the GFC. OECD (2019b) shows that access to finance still remains a major concern among SMEs a decade after the GFC. A growing number of SMEs are relying on internal finance for investment, with the share of SMEs doing so increasing from 35 per cent in 2014 to 44 per cent in 2018 (Figure 2a). The trend hints that an increasing number of small firms are financially constrained and struggling to grow.

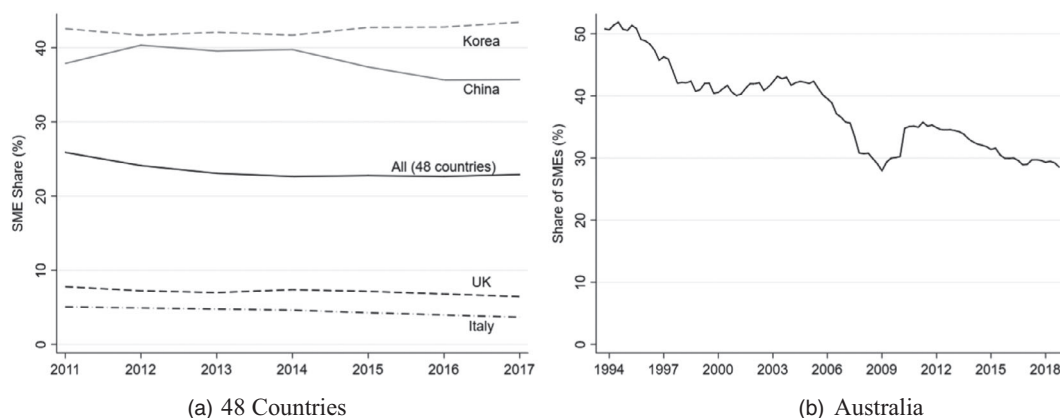
In Australia the share of loans going to SMEs has been gradually falling over the years, pointing to an increasing number of SMEs feeling financially constrained (Figure 2b).

Blancher *et al.* (2019) identify several areas where policy could improve the financial inclusion of SMEs: expanding the financial technology (FinTech) sector to reduce reliance on banks; credit information sharing; and modernising insolvency regulations and the legal system to support SMEs.

A growing FinTech sector can offer a host of services to small businesses in both developing and developed countries. FinTechs can benefit SMEs (Nanda, 2018; Török, 2018), for example, by simplifying the application process and making financial services available to remote areas where access to the internet opens up new

FIGURE 2

The Share of Loans to SMEs as a Percentage of Total Loans. In (b) SMEs are defined as having A\$10 million revenue or less.



Sources: (a) International Monetary Fund Financial Access Survey; (b) RBA D7.3 statistics

possibilities for entrepreneurship. In addition, as FinTech companies expand and multiply, they are becoming a major source of job creation themselves (Jackson, 2016).

The rising popularity of FinTech companies, however, is also raising concerns about the proliferation of predatory lending practices, such as higher interest rates, confusing loan terms, and non-transparent operations (Palladino, 2019). As it stands, FinTech companies operate outside (for the most part) the regulatory environment that binds the conventional financial institutions. Regulatory bodies are yet to catch up with the evolution of this sector.

There is some evidence that information sharing can facilitate access to finance. Brown *et al.* (2009) study firm-level data from the Soviet Union and transition countries in eastern Europe. They find that information sharing among banks increased credit availability and lowered credit costs. Sharing a collateral registry, as Love *et al.* (2016) show, can increase access to credit, especially for small and young firms.

(i) SME Finance and Risk-Sharing Mechanism

Situated at an earlier stage of financial evolution, SMEs are highly reliant on external financing to fuel their development. The need to obtain adequate financial resources has prompted public authorities and non-profit organisations to set up interventions meant to compensate for the lack of finance available to SMEs through normal market channels.

As reviewed earlier, these financing support programs work mainly through direct financing loans and guarantees. Direct financing loans are loans provided directly by governments, whereas guarantees are essentially insurance policies provided by governments for lending conducted in the commercial market. Guarantees have the advantage that they are potentially a sustainable way to provide SMEs with financing while improving the efficiency of market allocation with minimal government interference. Of course, if loans are not paid back, there can still be considerable risks and costs for government. While loans and equity may help the business with one-off financial aid, guarantee arrangements offer an avenue to reduce the risk in SME lending and to lower the interest rates faced by SMEs with minimum market distortion.

Initiated in some developed markets, the risk-sharing scheme is now being promoted and expanded across different countries. Jointly funded

by government, the banking sector and large companies, the KODIT initiative in Korea, for instance, had \$41.1 billion worth of outstanding guarantees in 2017. The Small Business Administration in the USA, as another example, provided guarantees of \$29.4 billion in 2016. The European Investment Fund has also helped 275,000 SMEs to access finance through the COSME Loan Guarantee Facility since its initiation in 2014 (European Investment Fund, 2018).

Risk-sharing mechanisms have also motivated a strand of literature which looks at their features and the impact on financial additionality for SMEs. The two major forms of risk-sharing schemes available to SMEs are guarantee funds and mutual guarantee associations. Guarantee funds are generally government-provided pools of money to guarantee loans to SMEs from the private market. Mutual guarantee associations are private guarantee institutions created by beneficiary SMEs, sometimes with support from government, to pool risk. Other private guarantee associations, which might be founded by chambers of commerce or banking associations, bring capital from private shareholders to back loans to SMEs. Balkenhol (2007) compares their pros and cons.

The risk-sharing schemes usually provide collateral for a portion of the private bank loan, up to 80 per cent, leaving the remaining 20 per cent (or more) risk to the investing company. The SME which takes out the loan remains liable for the payment of the loan. The risk-sharing scheme provides an insurance mechanism through a loan guarantee. By bringing together private investors, government partners and beneficiary SMEs, the risk is spread across a large number of agents.

There are several considerations in these programs. First, information on borrowers' risk and trustworthiness is costly to generate, but not so expensive to disseminate. As a result, financial intermediaries do not have incentives to produce this information (Bannock, 1997). For that reason, government financed guarantee instruments can serve as the medium to produce and circulate this information. Further, by endorsing a loan application, the guarantee instrument facilitates a signal about the profit prospects of the proposed investment and effectively mobilises the financial resources from lenders to small-business borrowers (Beck & De La Torre, 2006).

The potential shortcomings in the risk-sharing mechanism are also highlighted in the literature.

As summarised by Balkenhol (2007), the major concerns raised are adverse selection and moral hazard. On the side of financial intermediaries, it is possible that under the risk-sharing arrangement banks could shift risky investments to guarantee funds. On the borrower side, by knowing that the guarantee funds might get involved, guaranteed firms might not make full effort to pay back the loans. Moreover, since closely monitoring peer firms' performance is rather difficult, mutual guarantee associations are likely to attract risky firms; the less risky SMEs might not choose mutual guaranteed schemes (Zecchini & Ventura, 2009). On top of those, the guarantee mechanism is also subject to the criticism of generating subsidy reliance and showing mixed results in terms of cost-effectiveness. Other forms of assistance to SMEs often face the same criticisms.

Extended from these theoretical arguments, a stream of research empirically tests the influence of the risk-sharing mechanism on SME finance. Using firm-level data from the UK, Cowling (2010) compares the capital constraints faced by smaller firms with and without an available guarantee scheme and finds support for the notion that programs which provide loan security relax the financial constraint for small businesses. Similar positive effects of opening up credit access for SMEs are also found in other OECD countries, including Italy (Zecchini and Ventura, 2009), Canada (Riding *et al.*, 2007), Korea (Kang & Heshmati, 2008), Spain (Garcia-Tabuenca & Crespo-Espert, 2010), France (Lelarge *et al.*, 2010) and Chile (Cowan *et al.*, 2015).

For the guarantee scheme to operate over a relatively long time period, it has to be financially sustainable, and fee revenue must cover losses and operating cost. Hennecke *et al.* (2018) present an analysis of the state-backed credit guarantee schemes implemented in Germany and compare the schemes' effectiveness with guarantee arrangements in other countries. These findings suggest that guarantee programs, by extending credit availability and prompting the investment activities of SMEs, contribute to real gross domestic product increases and guarantee banks' fiscal gains in states running these schemes.

However, not all guarantee schemes are profitable to the guarantors. The Italian guarantee system has a deficit of roughly 0.3 per cent per guarantee (Zecchini & Ventura, 2009). In fact, Gudger (1997) suggests that most guarantee systems could not achieve self-sufficiency in

operation. When guaranteed firms cannot fulfil payment obligations, the guarantor is required to bear the cost of paying the debt to the lender. How to confine the default rate to a reasonable level is another focus when conducting cost-benefit analysis for risk-sharing schemes. Previous literature suggests default rates vary significant across countries and sectors, ranging from less than 5 per cent in Germany to more than 40 per cent in the UK (see Riding & Haines, 2001, for a review). Also controversial is where to set the benchmark for a reasonable government-guaranteed ratio in the loan provided by a bank. This ratio regulates the coverage of the default cost incurred by borrowers.

Finally, governments can also have an indirect role in mitigating the difficult access to finance faced by SMEs. A few studies have shown that government financial assistance to small and young firms in the form of subsidies and grants improves their prospects of also obtaining market loans and investment. In a theoretical setting, Takalo and Tanayama (2010) show that government R&D subsidies to small businesses not only reduce the capital cost for these firms, but also send a quality signal about these firms which makes it easier for them to obtain financing. Meuleman and De Maeseneir (2012) show that R&D tax subsidies in Belgium resulted in better access to debt financing for small firms. Bakhtiari (2019b) tests the effect of government assistance in Australia and finds a positive impact on the probability of firms obtaining external finances.

(ii) Future Directions for Policy Research

Two big unresolved questions are the relationship between SME assistance and wider economic objectives; and the heterogeneity of SMEs and what this means for policy. For example, is promotion of and assistance to SMEs an effective way to achieve key economic objectives such as high employment or high rates of innovation? This can be very difficult to test as SME assistance is relatively small compared to large macro-economic fluctuations and trends. The effects of SME assistance on wider economy aggregates remain unknown.

Heterogeneity presents real challenges. Can we meaningfully aggregate micro- and small business with medium-sized business in an attempt to achieve specific policy goals? Are the programs and policies which help the 'average' SME well suited to the micro-firms? Do we need different kinds of policies for different kinds of SMEs?

These important questions suggest that much fruitful research can still be produced in this area.

VII Policy in the Post-Covid-19 Era

Economic growth and job growth will be key elements of the recovery from the economic consequences of the Covid-19 pandemic. SMEs, with their large share of employment and their capacity to contribute to economic dynamism, will be a key part of that. SMEs have a lower capacity to withstand a prolonged economic slump than larger firms, so firm failure will be a reality of the pandemic.

Reducing financial constraints for SMEs after the pandemic may be one way to help stimulate their growth and the job growth that they can create. There is a need in Australia to turn around the trend of a lower fraction of financing going to SMEs which we document in Figure 2.

The Australian government and industry, working in partnership, should consider introducing programs to help SMEs with potential financial constraints. The two most promising, based upon our reading of the literature, are loan guarantee programs and risk-sharing mechanisms of the type found in Korea that bring together banks, government and SMEs. Both types of programs would have to be designed in harmony with Australian-specific institutions; it is hard to simply import programs from other countries, given the vast differences in culture, practice and institutions.

The mixed results from such programs in terms of success and cost-effectiveness suggest that a period of policy experimentation is called for. One promising avenue forward is to introduce pilot programs that incorporate random assignment. Using increasingly available administrative data combined with programmatic data, new policies can then be evaluated and modified going forward. There is no guaranteed avenue for success, but there is scope for successful policy-making, backed by evidence and data.

VIII Conclusions

Small and medium enterprises make up the vast majority of businesses in most OECD countries. Their success and survival, employment growth strategies, productivity and innovation largely depend on access to financial resources. Small businesses, especially young firms, generally face tight resource constraints. This is particularly true when financial markets are volatile or unfavourable. This survey has

reviewed a large body of evidence related to the impact of financial constraints on SMEs' performance. Based on the evidence, we also highlight a few important policy debates about the best way to support SMEs' access to finance.

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