Public Aid and the Performance of Born Globals

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Abstract – Analyses of born-global firms have not yet provided a comprehensive picture of the role of public aid in supporting those firms that specifically seek to internationalize early and intensively. To fill this gap, this paper uses a unique dataset that combines comprehensive information about both the production and export activities of newly established French manufacturing firms and a variety of public support instruments allocated to those firms by Bpifrance, the French public investment bank. Our key result is that French born globals are less likely than their more traditional exporting counterparts to receive public aid dedicated to generally support their investment projects. By contrast, they are as or more likely to receive public aids specifically dedicated to support their innovation and internationalization projects. We also show that the returns on aid dedicated to investment projects are especially high for born globals. We conclude that there is room to improve the allocative efficiency of public support towards born-global firms.

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In most developed countries, the performance of manufacturing firms in export markets has become a major concern for policy makers. This concern meets the widely acknowledged view that it is mainly small and young innovative companies that create the most wealth and jobs in the long run. Policy makers now acknowledge that at least some newly established businesses are born globals in the sense that they internationalize very early, if not at birth, and make a large share of their turnover in export markets from the very beginning of their existence. However, in most industrialized countries, born globals still represent a small percentage of all start-ups. A policy issue is then whether more start-ups should be encouraged to engage in such born-global strategies and/or be offered specific support schemes to help them fully exploit their innovative and economic potential.

In the literature, the relationship between public support and born-global strategies is seldom addressed, even if the issue of international entrepreneurship has a long tradition, which can be traced back to the early contributions by Cavusgil (1980), McDougall (1989), Oviatt & McDougall (1994), Knight & Cavusgil (1996), and Madsen & Servais (1997), among others. In a seminal survey, Cavusgil & Knight (2015) acknowledge the lack of policy-oriented studies in this field. This means that current public and policy discussions have largely rested on limited evidence based on case studies rather than on systematic evidence based on survey analyses or on large-scale longitudinal firm-level data. Moreover, none of the few recent studies that provide systematic quantitative evidence on the relative characteristics of born globals, as Choquette *et al.* (2017) for Denmark, Braunerhjelm & Halldin (2019) and Ferguson *et al.* (2021) for Sweden, directly address the issue of public policies.

In this paper, we fill this gap by investigating the relationship between public aid and the performance of born globals in the case of France. More specifically, we analyse the relationship between key characteristics and relative performances of French born globals and their likelihood of obtaining two specific types of public funds, namely subsidies and public loans. For this, we use an exhaustive dataset of French manufacturing firms that covers the period 1998-2015. This dataset, unique in France, has two main advantages compared to those used in earlier literature. First, it provides extremely rich and detailed information on the production and export activities of a large subset of French manufacturing companies, thus enabling fine-grained measures of firm performance. Second, this information can be matched with exhaustive information on public financial aid, specifically innovation subsidies, and innovation, internationalization and investment loans, granted to these newly established manufacturers.

This enables us to examine, for the first time for France, the extent to which born globals differ from other exporters in their reliance on public support. Because born globals seek fast and early internationalization, they might have larger needs of external funding due to their limited tangible resources. On the other hand, because they are by nature less able to offer domestic collaterals than firms which first established themselves locally before expanding abroad, they might also be the least apt to access external funding.

Our key results are as follows. The born-global status of a firm is positively related to its participation in some supportive programs offered by the French public investment bank such as innovation subsidies and international loans, but negatively related to its participation in other programmes such as investment loans. A rationalization of the aid system in favor of born globals could then be desirable. First, while we find a positive effect of investment and international loans on the turnover of born globals, we do not observe any statistically significant effect of innovation loans and subsidies on recipients' firms up to 5 years after being granted. Second, the born-global performance advantages are correlated with the exports scope but not with the average quality of their exports. As a result, born globals might be more in need of public funding supporting their market expansion, which is the case for international and investment loans more than for innovation subsidies and loans.

The rest of the paper is organized as follows. Section 1 reviews the relevant literature and how we build on it. Section 2 describes the data and provides some descriptive statistics about the born-global phenomenon in France. Section 3 lays out our econometric analysis and discusses the results, before some concluding remarks.

1. Literature Review

Our study relates to three main branches of the literature. The first branch explores firm heterogeneity in international trade. The second one investigates the born-global strategy. The third one focuses on policy actions aimed at supporting the internationalization of small and

medium-sized enterprises (SMEs), especially young ones. In this section, we provide some of the theoretical and empirical background behind each branch of the literature and explain how our study builds on their interconnection.

1.1. Firm Selection and Export Premia

In the late 1990s, a literature emerged, and has dramatically expanded since, dedicated to exploring the export and productivity nexus at the firm level (see the seminal contributions of Bernard & Jensen, 1995; 1999). The existence of large export premia has been established for various performance indexes, primarily turn-over, employment, wages, productivity and profitability (see ISGEP (2008) for cross-country comparative evidence, and Bellone *et al.* (2008) for detailed evidence from France). This literature further showed that the productive advantage of exporters over their non-exporting counterparts is usually observed *ex ante*, i.e. before their entry into export markets, supporting the theory that heterogeneous firms make different choices in terms of export strategy (Melitz, 2003; Bernard *et al.*, 2003). This mechanism is known in the literature as self-selection into export markets as it entails that only firms productive enough to support the additional costs of exporting can afford to expand their activity abroad.[1]

In the late 2000s and early 2010s, a second wave of this literature mobilized richer datasets to provide a better account of the variety of firms' export strategies and of their relationship to firm performance. From these works, some further consensual findings emerged. First, the degree of internationalization is positively related to firm performance; in particular, firms that export earlier, more intensively, and with more products towards more destinations exhibit the highest export premia (Crozet *et al.*, 2011). Second, productive efficiency is not the only determi-nant of export participation: specific managerial assets such as previous international experience and social and networking capital, as well as specific demand shocks, also play a large part in explaining the diversity of the international-ization path of firms (Albornoz *et al.*, 2012; Aw *et al.*, 2019).

Overall, the literature on export premia leads us to expect that the born-global strategy could indeed be an attribute of start-up firms exhibiting high-performance. For instance, those firms could own specific innovative assets that make them more able to scale their production to the global level. They could also possess previous international expertise, specific international

managerial ability, or some higher productive efficiency, each of which could allow them to overcome more easily barriers to export. In our research, we provide new evidence to support these hypotheses, and we extend the literature on export premia to the unchartered territory of the relationship between export premia and public support to firms.

1.2. The Born Global Strategy in Detail

Qualitative research on born globals has expanded rapidly over the last decades, focusing on documenting their characteristics and understanding the underlying trends that give rise to these types of firms (Moen & Servais, 2002). Among other results, these studies have found that born globals are typically innovation intensive (Andersson & Wictor, 2003; Knight & Cavusgil, 2004) and human capital intensive (McDougall *et al.*, 1994, 2003; Knight, 2001; Melén & Nordman, 2009; Del Sarto *et al.*, 2021) and are characterized by a production process that is easily scalable (Kudina *et al.*, 2008; Cannone & Ughetto, 2014).

Although the literature on born globals has expanded, little systematic evidence on the extent or consequences of early international-ization based on comprehensive datasets of firms exists (Dabić *et al.,* 2020). Notable exceptions are the recent papers by Choquette *et al.* (2017), Braunerhjelm & Halldin (2019) and Ferguson *et al.* (2021), which provide the first systematic analyses of the relative performance of born globals for Denmark and Sweden. However, a puzzling finding of these first quantitative papers is that born globals are not that different from their counterparts who enter the export markets more gradually. For instance, Ferguson *et al.* (2021, p.12) conclude as follows: *"The evidence presented here suggests that there is no clear advantage in terms of long-run employment, turnover or value-added associated with a born-global strategy."*

Our study builds on these premises and contrib-utes to reducing the lack of reliable large-scale firm-level evidence on the born-global phenom-enon. First, we investigate whether our data on France support the finding of unexceptional performance of born globals or whether they provide more support to the theoretical predic-tions that born globals should outperform

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1. The literature also provides some supportive evidence for the existence of learning-by-exporting effects, implying an opposite causality that runs from export to productivity (De Loecker, 2013). However, this finding is less pervasive across countries, industries, and firms, and more sensitive to methodological choices.

their counterparts who export more gradually. Second, we push the analysis of the distinctive features of the born-global strategy further by emphasizing the scope and the quality of firm export portfolios. Third, we investigate whether born globals display any distinguishable quantitative features in the way they benefit from public support. In doing so, we shed new light on recent policy-oriented issues that we now briefly review.

1.3. Public Support in Question

The case for public action in favour of the international activities of firms is all but obvious. Contrary to the case for public support to innovation, which reached a kind of consensus among academics and practitioners in the 2000s (Aghion *et al.*, 2009), such a consensus does not yet exist for actions specifically dedicated to sustaining the export strategies of firms. For example, the literature on export premia has mixed policy implications. On the one hand, by emphasizing self-selection mechanisms, this literature has been prone to conclude that policies aimed at promoting the entry of firms into export markets are likely to be a waste of resources (Greenaway & Kneller, 2007). On the other hand, by revealing the existence of credit market imperfections that act as a barrier to export participation, some further papers have advocated in favour of policy actions aimed at promoting the export participation of financially constrained firms (Máñez *et al.*, 2014).

Whether public policy should directly support the internationalization of SMEs has also been extensively debated in the business-oriented literature (Acs *et al.*, 1997). No large consensus emerged on this issue, although many claimed, in the 2000s and 2010s, the need to provide born globals with adequate public support. For instance, Wright *et al.* (2007) claim that appropriate policy schemes must be designed differently at different points on the spectrum of firms, which can range from those that do not and cannot internationalize to those that internationalize from their inception. In the same vein, the policy reports by Eurofound (2012) and the OECD (2013; 2018) also emphasize that policy schemes designed to support SMEs' traditional modes of gradual internationalization might not be effective, or even be counterproductive, when the target is other types of exporters such as born globals. For instance, Eurofound (2012) notes that public support measures to foster start-ups often include eligibility criteria which hinder born globals' access to the instrument. This might be, for example, the requirement to have an established home market or a well-tested product or service before qualifying for financial support for internationalization or the implicit necessity to have sufficient financial resources to cover costs, as reimbursements will be provided only later on. On the other hand, the OECD (2013) emphasizes that only a few OECD countries have policy support programmes specifically dedicated to born globals and makes the basic claim that those specific programmes should be more widespread across OECD countries.

Beyond those specific policy schemes, the international entrepreneurship literature also emphasizes the complementary role of other policy measures dedicated to support the general investment activities of born globals (Cavusgil & Knight, 2015; Sui & Baum, 2014). A key argument here is that born globals usually expand rapidly in external markets because they exploit specific intangible assets. As young and innovative firms usually face stronger financial constraints than other firms (see, among others, Meuleman & De Maeseneire, 2012), it is likely that born globals also face stronger financial constraints than other newly established firms that follow more traditional internationalization paths. Indeed, born globals are known to lack domestic collateral, as they earn a large share of their revenues in foreign markets early in their life. In this context, one might wonder whether policy actions aimed at easing the financial constraints that bear on innovative firms benefit born globals especially.

Considering specifically the French case, public support for young and innovative firms can be traced back to the late 1960's with the creation of the Agence nationale de valorisation de la recherche (a public agency dedicated to the industrial valorisation of research and aid for innovation, created in 1967, which after various reorganisations is now part of Bpifrance – see below). However, in the late 2000s, the innovation dynamics in France were still considered too weak (OECD, 2014), with firms that were willing to innovate declaring a lack of external and internal funds and the cost of innovation as their primary obstacles. In this context, in the end of 2012, the French government created Bpifrance[2] as a one-stop shop to better allocate public support to French firms. Bpifrance uses different types of instruments, from subsidies to loans, and provides support not only for innovation projects but also for internationalization

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2. *Bpifrance was created as a merger of three pre-existing institutions dedicated to business-oriented policy actions in France: OSEO, CDC Entreprises and the* Fonds Stratégique d'Investissement *(FSI).*

and investment projects.[3] Born globals, like any other firm in France, are eligible for this support conditional on some criteria for size, age and financial health that vary according to the instrument. However, none of these instruments is specifically designed to target born globals.

Considering the likelihood of benefiting from public support, Huergo & Moreno (2017) show that firm characteristics impact the likelihood of Spanish firms participating in various R&D support programmes and that this impact varies across the types of tool and, in particular, between loans and subsidies. Interestingly, they show that the export status of the firm is positively linked to the likelihood of benefiting from a European R&D support programme but not from a national subsidy. Our paper adds to this line of research by investigating the extent to which the born-global status of a firm is related to its participation in various types of supportive programmes offered by Bpifrance.

2. Data, Definition of Key Variables, and Descriptive Statistics

2.1. Data Source

We use three main sources of micro-level data. First, we rely on data collected by the French national statistical office, INSEE, namely the FICUS-FARE database and the LIFI database. The FICUS-FARE database covers the universe of French firms under the BRN and RSI tax regimes and, since 2008, the micro-BIC regime.[4] It includes key firm accounting information such as turnover, value-added and number of employees. The LIFI database is built from a survey and allows us to complement firm-level information with additional information on the ownership structure of the firm. Specifically, we can identify whether the firm is an independent business or a subsidiary within a domestic or foreign group.[5]

Second, we rely on detailed firm-level data on exports derived from French Customs records. These additional data allow us to identify both the product exported by the firm and the destinations that the firm serves. Destinations are defined at the country level and correspond to the final destination of each export flow recorded by the Customs Office, and products can be differentiated up to the 10-digit product classification code, although in this research, we use more aggregated NC product classifications to compute our product scope and product quality indexes.[6]

Finally, we merge the INSEE and Customs firm-level data with detailed firm-level data on public aid from Bpifrance records. This unique data source provides us with exhaustive information on the type, amount and timing of the public aid that Bpifrance (itself or the previous public institutions) offered to French firms over our period of observation. The information provided in the Bpifrance database allows us to distinguish among various instruments that differ either in terms of type (loans *versus* subsidies), or in terms of the activity targeted (investment, internationalization, or innovation).

More precisely, *"investment loans"* aim at financing investment in intangible assets that firms need to develop their activity in general. Such loans can cover expenses related to product upgrading, or environmental protection, external growth, recruitment and training of the sales team, development works, prospecting, advertising, acquiring materials, developing software packages, purchasing equipment with low resale value, maintaining working capital requirements, etc. *"International loans"* are specifically dedicated to support external growth in foreign markets. Such loans can be used to finance the increase in working capital generated by an internationalization project, investment in intangible assets, or investment in tangible assets with low pledge value. Finally, *"innovation loans"* are dedicated to supporting the development of new and innovative products, services or processes by firms. Because they are loans, each of the above three financial supports are allocated according to traditional bank criteria related to the firm's capacity to make monthly payments, although these criteria might differ slightly from one instrument to another.[7]

The two last instruments we consider in our study are of the subsidy type. First, Bpifrance grants

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3. More detail on the different instruments and their eligibility criteria is given in the data section below.

4. The "BRN" (Bénéfice Réel Normal) and "RSI" (Régime Simplifié d'Imposition) are the two main tax regimes for all types of for-profit businesses in France. The "micro-BIC" regime is a simplified regime applicable to very small firms whose total sales do not exceed 170k euros if the firm operates within the real estate and trade sectors, or 70k euros otherwise.

5. Contrary to the FICUS-FARE database, the LIFI database is not exhaustive, as only French companies in the private sector with a portfolio of equity securities greater than €1.2 million euros, with a turnover greater than 60 million euros, or with a salaried workforce greater than 500 people, regardless of the sector of activity, are surveyed (in addition to all the heads of groups from the previous year and the companies directly owned by a foreign company). Consequently, if some firms are owned by French companies below the abovementioned thresholds, they will appear as independent instead of affiliated in our sample.

6. Specifically, we compute our scope variable at the 6-digit product classification level as in Choquette et al. (2017) and the quality variable at the 8-digit product classification level to follow Manova & Yu (2017), our benchmark methodology paper for this index.

7. We do not have access to the selection criteria used by Bpifrance to determine the allocation of each type of loan. What we do know is that eligibility criteria are very similar. For all types of loans, any SME and ETI is eligible on the condition that the firm is independent or is less than 25% owned.

"*repayable advances*" to support innovation projects in their development stage.[8] Specifically, repayable advances aim to finance the production and development of prototypes, pre-series, pilot or demonstration installations, intellectual property expenses, standards upgrades, designs and market test studies. Second, Bpifrance grants "*pure innovation subsidies*" to support innovative projects at an early stage. These subsidies can be used to finance evaluations of the feasibility of an innovation project, the establishment of technological partnerships, and R&D expenditures.

2.2. Sample Construction

To build our sample, we merge the three datasets mentioned above over the longest common time coverage, i.e. 1998-2015, and then restrict our dataset to firms that declare a main activity code within the range of manufacturing activities (NACE Rev. 2 industries 10–33) at their date of entry[9] and a birth date within the range of 1998 and 2010.[10] Overall, this raw sample consists of 317,095 firms. The average firm in this sample employs 7.2 people and generates turnover of approximately 1,583k euros (see Table A1 in the Appendix).

As any other large dataset on firms, ours is noisy and includes values that we consider highly dubious. To avoid our results to be driven by those inconsistent values, we drop observations with negative or null turnover and employment and strictly negative value added and assets, as well as export intensity (defined as the ratio of firm total export values to firm total sales) greater than 1. After this cleaning, our remaining sample consists of 101,470 firms, employing on average 18 people and generating a turnover of approximately 3,524k euros. The main driver of the increase in the average firm size of this sample as compared to the raw sample is the exclusion of firms with zero employees or turnover.

On this cleaned sample, we perform two more selections. First, for both comparability and conservative purposes, we remove firms that report employment and turnover values at inception in the top 1% of the corresponding distribution. For comparability purpose, this is similar to the selections made by Choquette *et al.* (2017) and Ferguson *et al.* (2021) which are our benchmark papers. For conservative purposes, it limits the risk of confusing spinoffs as new business entities.[11] After this first selection, we are left with a sample of 96,434 firms. In this sample, the average firm employs 7 people and generates a turnover of approximately 679k euros.

The second selection consists in removing firms that do not survive for at least six years, as observing firms in the first years of their existence is necessary to define our different firm status (see the next section). This results in a final sample of 244,061 observations for 24,399 firms. These firms on average employ 7.7 workers and generate a turnover of approximately 970k euros. We provide more detailed comparisons between our raw, cleaned, intermediary, and final samples in Table A1 of the Appendix. Those comparative statistics show that our final sample is quite representative of our raw sample despite a size and survival biases in favor of exporting firms as compared to non-exporting ones.[12]

2.3. Key Variables

2.3.1. Defining the Born-Global Status

One important challenge is building a definition of born-global firms that can be easily applied to large-scale datasets and can allow for fruitful analyses and cross-country comparisons. The most common definitions currently in use rely on both an arbitrary measure of early entry into exports and an arbitrary measure of high exposure to exports. The definition we use here is very close to the one initially introduced by Choquette *et al.* (2017).

Specifically, we define born globals as French firms that have an export intensity of at least 20% for at least one year in the first three years of their existence. Relatedly, we define *born exporters* as firms that export within three years after birth but have an export intensity less than 20% each year over that period and *late exporters* as firms that export in their fourth year after birth or later. Finally, *non exporters* are firms that never export over our period of observation. For each category, we build a corresponding dummy

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8. Repayable advances are grants that the firm must repay to Bpifrance after (and only if) the innovation project is successful.
9. Our restriction to manufacturing firms is primarily due to data limitations, as service exports are not recorded in French customs transaction data. However, it also facilitates comparability, as the previous quantitative evidence provided by the literature focuses on manufacturing firms only.
10. We exclude firms that are highly inconsistent in the birth date they declare during the period of observation or that show too large a discrepancy between their self-declared birth date and their first year of observation in our dataset. Specifically, we drop firms with a gap larger than two years between the declared birth date and the first date of observation.
11. Being able to control for the firm ownership through the LIFI dataset is not enough to exclude this risk. Ferguson et al. (2021) additionally take advantage of a unique feature of the Swedish dataset that allows for the precise identification of spinoffs, as it includes the percentage of the initial workforce which originated from a same former employer.
12. In an additional Online Appendix, we further provide robustness checks of our key results by running our regressions on the alternative raw, cleaned, and intermediary samples.

variable that takes the value 1 if the firm fits in the category, 0 otherwise.[13]

2.3.2. Defining our Key Variables

We use three main variables to measure firm economic performance: *Employment*, measured as the number of full-time equivalent employees, *Turnover*, measured as the value of sales and *Labour productivity*, defined as the ratio of value-added to the total number of employees.

We capture the firm exporting strategy by the scope and the quality of the export portfolio of the firm. The export scope of firm i in year t is measured through two complementary variables: *Product scope*, proxied by the number of HS 6-digit different products exported,[14] and *Destination scope,* proxied by the number of foreign countries reached as final destinations by the exported products. The quality of the export portfolio is measured by a variable (*Product quality)* built following Manova & Yu (2017) as the difference between the producer's log price (unit value) for the HS 8-digit product category the firm is exporting and the average log price of the same product across all firms exporting it. For firms exporting several products, we measure overall product quality as the weighted average of the product quality for each HS 8-digit product across all products the firm is exporting, using the export values as weights.

Finally, to capture the public support granted by Bpifrance to firm i in year t, we construct 4 dummy variables that identify separately whether firm i has benefited in year t from an investment loan, an international loan, an innovation loan or an innovation subsidy. Note that the latter category pools together repayable advances and pure subsidies.

2.3.3. Control Variables

In our empirical analysis, we control for several firm characteristics that might influence economic performance independently of the firm's born-global status. Following the earlier literature on export premia, we use two additional controls: *Firm size,* computed as the sum of tangible and intangible assets (in thousands of euros)*,* and *Firm ownership,* a qualitative variable taking 3 values depending on whether the firm is 1) identified in LIFI as owned by a French company, 2) identified in LIFI as owned by a Foreign company, or 3) residually considered as independent.

2.4. Descriptive Statistics

According to our data, born globals represent a low percentage of active manufacturing firms

in France. As shown in Table 1, in our sample, non-exporting firms represent more than 80% of entering firms in all the observed entry cohorts except the last one. Over the entire period, born globals represent around 3% of newly created businesses. Added to the born exporters, early internationalizing firms represent around 12% of all firms that entered the French manufacturing sector over the period 1998-2010 and survive at least 6 years.

Table 1 also illustrates the general trend of decreasing firm dynamism in French manufacturing over our period of investigation. However, the born-global phenomenon has remained relatively stable over that period. At the exclusion of the exceptionally high value for 2010, the percentage of born globals stood around 2.8% of manufacturing companies created each year, a figure consistent although slightly below that observed in Sweden and Denmark, which was of 3 and 4% respectively (see Ferguson *et al.*, 2021, and Choquette *et al.* 2017, respectively).

From the earlier literature, we expect born-global firms to display distinct characteristics from non or less exporting ones.[15] Various export premia computation exercises comfort this expectation. Specifically, we show that born globals generate a higher turnover, employ more workers and are more productive than their counterparts that follow later or less intensive internationalization paths (Table 2).[16]

We further show that the better performances of born globals persist over time, although the

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13. We tested the robustness of our results to changes in the definition of born globals. First, we changed the criteria for the persistence of export behaviour over the first years of the firm's existence by imposing that our baseline export intensity threshold of 20% prevails on average over the three first years of activity instead of "at least once". This makes our definition closer to the one used by Ferguson et al. (2021). Second, we made the lower bound on the export to turnover ratio a stricter bound (25%) and a weaker bound (15%). Finally, we changed the length of time after birth during which a firm must start exporting to be qualified as born global by making it shorter (2 years) or longer (4 years) than our baseline definition. All our results are robust to these changes of definitions.
14. Two products are considered as different if they are not classified in the same item of the Harmonized Commodity Description and Coding System (HS) of UN COMTRADE at the 6-digit level. The HS is the standard classification of products for trade data.
15. In Table A2 of the Appendix, we provide summary statistics on our variables of interest across different categories of firms: born globals, born exporters, late exporters and non exporters. Those statistics show that the average values of the performance variables are systematically higher for born globals than for any other category of firms.
16. Counterparts means firms of similar size and ownership status, belonging to the same industry, born in the same cohort and observed in the same year. Note that our results are not all in line with the previous quantitative evidence on Danish and Swedish firms established with the same methodology. First, in contrast with Choquette et al. (2017), who find no productivity premium for Danish born globals, we do observe such a premium in the French case. Second, contrary to what Ferguson et al. (2021) found for Swedish firms, we find that the born-global premia in France do not fade out after we control for firm ownership and are visible although we exclude firms with the top 1% of initial firm employment to limit the risk that we consider spinoff firms as new business entities.

Table 1 – **Distribution of entrant firms by type and entry year**

Year of entry	No. of entrants	Born globals (%)	Born exporters (%)	Late exporters (%)	Non exporters (%)
1998	2,893	3.08	10.37	6.19	80.37
1999	2,755	3.12	9.76	5.95	81.16
2000	2,754	2.40	8.50	6.86	82.24
2001	2,628	3.23	8.75	5.71	82.31
2002	2,487	2.69	8.12	6.47	82.71
2003	2,281	2.59	7.76	6.66	82.99
2004	2,142	3.08	7.19	5.37	84.36
2005	1,769	2.26	8.59	6.44	82.70
2006	1,554	2.90	9.33	5.15	82.63
2007	1,324	2.72	7.10	4.00	86.18
2008	520	2.50	8.46	3.08	85.96
2009	909	3.85	10.01	2.97	83.17
2010	383	6.79	10.97	3.92	78.33
Total	24,399	3.17	8.84	5.29	82.70

Sample: Manufacturing firms born between 1998 and 2010 and surviving at least 6 years.

Table 2 – **Economic performance by exporter type**

	Turnover		Employment		Labour productivity	
	(1)	(2)	(3)	(4)	(5)	(6)
Born globals	1.551***	0.784***	0.742***	0.434***	0.146***	0.059**
	(0.046)	(0.049)	(0.035)	(0.037)	(0.021)	(0.023)
Born exporters	1.240***	0.463***	0.613***	0.285***	0.055***	−0.025*
	(0.027)	(0.034)	(0.020)	(0.025)	(0.011)	(0.015)
Late exporters	0.773***	Ref.	0.345***	Ref.	0.079***	Ref.
	(0.027)		(0.019)		(0.011)	
Non exporters	Ref.	-	-	-	-	-
Firm size (Assets)	86.30***	52.98***	68.90***	45.08***	16.80***	9.13***
	(20.29)	(12.75)	(16.18)	(11.24)	(3.387)	(2.192)
Independent firm	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.
French ownership	0.196***	0.216***	0.126***	0.139***	0.005	0.015
	(0.007)	(0.014)	(0.006)	(0.010)	(0.006)	(0.010)
Foreign ownership	0.474***	0.536***	0.241***	0.262***	0.148**	0.153*
	(0.079)	(0.092)	(0.049)	(0.056)	(0.074)	(0.083)
R^2	0.327	0.289	0.208	0.221	0.250	0.190
Number of observations	244,061	42,433	238,103	42,249	238,103	42,249

Note: OLS estimates. Each model includes industry, year and year of birth fixed effects. ***, **, and * indicate significance at the 1, 5 and 10% levels, respectively. Standard errors clustered at the firm level are in parentheses.
Sample: Firms surviving at least 6 years, excluding non-exporting firms for columns (2), (4) and (6).

gap narrows up with the performances of late exporters after 3 years of existence. We illustrate this tendency in Table 3 in which we report the employment premia of each category of exporters compared to the non exporter firms.[17] By contrast, the gap between the performance of exporting firms (all categories confounded) and the one of non exporters increases after 6 years of existence.

Finally, we show that born globals also differ from more traditional exporters in terms of the scope and quality of their exports (Table 4). French born globals indeed have on average 101% more destinations, and 85% more export products than late exporters and they

export products of higher average quality.[18] This finding pushed us to design our empirical strategy, described in the next section, such that export strategy variables enter as determinants of the probability of receiving public support along with the firm exporter status.

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17. This convergence tendency is also observed when the export premia are computed in terms of turnover or labour productivity. Those additional results are reported in the Online Appendix S1.
18. In the Online Appendix (see Table S1-4), we further show that each export strategy variable is significantly associated with firm economic performance. When interacting born globals with their export scope, we find that larger scopes (both in destinations and in products) are associated with better performances. These premia are larger for born globals than for other exporting firms. We also find that product quality is associated with better firm performance, but the premium is not significantly larger for born globals than for other exporting firms.

Table 3 – **Export premia over the firm life cycle measured in terms of employment**

| | Employment | | | | | |
| | 1 to 3 years | | 4 to 6 years | | 7 and more years | |
	(1)	(2)	(3)	(4)	(5)	(6)
Born globals	0.731***	0.509***	0.664***	0.397***	0.804***	0.411***
	(0.034)	(0.039)	(0.040)	(0.039)	(0.056)	(0.048)
Born exporters	0.587***	0.343***	0.576***	0.272***	0.678***	0.266***
	(0.019)	(0.026)	(0.023)	(0.026)	(0.033)	(0.030)
Late exporters	0.247***	*Ref.*	0.321***	*Ref.*	0.424***	*Ref.*
	(0.019)		(0.019)		(0.026)	
Non exporters	*Ref.*	-	*Ref.*	-	*Ref.*	-
R^2	0.192	0.221	0.232	0.221	0.203	0.221
Number of observations	70,514	12,532	69,669	11,963	97,920	17,754

Note: Each OLS estimate includes the same control variables as those in Table 2. For the sake of space saving, we do not report the coefficients on the firm control variables. ***, **, and * indicate significance at the 1, 5 and 10% levels, respectively. Standard errors clustered at the firm level are in parentheses.
Sample: Firms surviving at least 6 years, excluding non-exporting firms for columns (2), (4) and (6).

Table 4 – **Scope and quality of exports by exporter type**

| | Destination scope | Product scope | Product quality |
	(1)	(2)	(3)
Born globals	1.015*** (0.028)	0.851*** (0.028)	0.081* (0.046)
Born exporters	0.310*** (0.014)	0.308*** (0.015)	−0.005 (0.039)
Late exporters	*Ref.*	*Ref.*	*Ref.*
Firm size (Assets)	23.920*** (7.736)	26.930*** (4.235)	−8.125 (5.573)
Independent firm	*Ref.*	*Ref.*	*Ref.*
French ownership	0.123*** (0.012)	0.124*** (0.012)	−0.005 (0.019)
Foreign ownership	0.157** (0.071)	0.158** (0.069)	0.063 (0.097)
R^2	0.280	0.214	0.061
Number of observations	27,209	27,209	26,891

Note: OLS regressions, where the dependent variables are expressed in log for columns (1) and (2), but not for column (3) (product quality has negative values). Each regression includes the same control variables as those in Table 2. ***, **, and * indicate significance at the 1, 5 and 10% levels, respectively. Standard errors clustered at the firm level are in parentheses.
Sample: Exporting firms surviving at least 6 years, for which Customs data on the dependent variables is available.

3. Which Firms Receive Public Aid and What Impact on their Performance?

3.1. Empirical Strategy

In order to investigate the relationship between born-global status, firm economic performance and the public support granted by Bpifrance, we proceed in two main steps. First, we estimate the likelihood of receiving various types of public aid by type of exporter. Second, we estimate the impact of receiving a public support in year t on the firm performance in subsequent years.

In the first step, we estimate the following probit model on the subsample of exporting firms:

$$\Pr\left(y_{i,t}=1|Z_{i,t}\right)=\Pr\left(Z_{i,t}\theta+u_{i,t}\geq 0|Z_{i,t}\right)$$
$$=\Pr\left(Z_{i,t}\theta\geq -u_{i,t}|Z_{i,t}\right)=F_{-u}\left(Z_{i,t}\theta\right). \quad (1)$$

where $y_{i,t}$ is a dummy variable that takes the value 1 if firm i received public aid in year t. F is the standard normal cumulative distribution

function, $F(Z_{i,t}\theta)=(z_{i,t}\theta)=\int_{-\infty}^{Z_{i,t}\theta}\frac{e^{-t^2/2}}{\sqrt{2\pi}}dt$, and $u_{i,t}\sim N\left(0,1\right)$. Z is a vector of firm-level control variables that includes *Firm export type*, *Firm size* and *Firm ownership* and our three performance variables, *Turnover, Employment* and *Labour productivity*.

In the second step, we address the relationship between performance in $t+k$ and public aid received in t for the subsample of born-global firms, by comparing their performance before and after receiving a loan or a subsidy from Bpifrance in a difference-in-difference setting. Specifically, we estimate the following equation that is derived from an event-study framework using the full performance histories of born globals:

$$Perf_{i,t}=\sum_{k=-2}^{5}\delta_k I\left(t=t^*+k\right)Aid_i+\alpha_i+\theta_t$$
$$+X_{it}'\beta+u_{i,t} \quad (2)$$

with *Perf* alternatively one of our three performance indexes (*Turnover, Employment* and

Labour productivity). $I\left(t = t^* + k\right)$ is an indicator for whether year t is k years far from year t^* of receiving the public support, k varying between -2 and 5. Our key explanatory variable *Aid*, represents alternatively each type of aid (*innovation subsidy, investment loan, international loan* and *innovation loan*). X'_{rt} is a matrix of time-varying control variables which include *Firm size* and *Firm ownership*. We also add firm fixed effects α_i in this regression to control for all unobservable, time-invariant firm characteristics that might impact the firm's performance. θ_t is a vector of year fixed effects. In this specification, each coefficient δ_k measures the change in the performance variable between $t-2$ and $t+k$ for born globals that received an aid compared to those that did not.

3.2. Results on the Likelihood of Receiving Public Support

Based on the literature, we expect an ambiguous relationship between born-global status and the likelihood of receiving public support. On the one hand, born-global firms may have easier access to public aid because they are better able to overcome the fixed costs of preparing an aid application or because they have a higher expected benefit from aid and therefore a greater incentive to apply. Additionally, depending on their selection criteria, public investment banks might be more willing to allocate aid to higher performing firms, and we have shown that born globals perform on average better than other types of firms. On the other hand, born globals might lack domestic collateral and could be seen as less reliable or more risky borrowers.

The estimation results of equation (1) highlight this ambiguous relationship in two ways. First, the likelihood of obtaining an innovation subsidy appears higher (by 1 percentage point) for born globals than for late exporters (Table 5). This finding is consistent with the idea that born globals are more innovative than newborn firms on average, and are consequently more likely to obtain innovation subsidies from public agencies. Second, born globals also appear more likely than late exporters to receive an international loan but less likely to receive an investment loan. On the one hand, this finding is consistent with the idea that born globals may have lower fixed costs or expect higher returns to their internationalization activities than late exporters. This would incentivize them to seek out and/or this would allow them to obtain loans linked to these activities. On the other hand, it also supports the idea that being granted

Table 5 – **Likelihood of receiving public support by firm type**

	Innovation subsidy (1)	International loan (2)	Innovation loan (3)	Investment loan (4)
Born globals	0.0103***	0.0025***	0.0003	−0.0026***
	(0.0017)	(0.0008)	(0.0008)	(0.0009)
Born exporters	0.0044***	0.0018***	0.0005	−0.0027***
	(0.0014)	(0.0006)	(0.0006)	(0.0007)
Late exporters	Ref.	Ref.	Ref.	Ref.
Firm size	−0.150	0.038	−0.176**	−0.043
	(0.195)	(0.052)	(0.084)	(0.097)
Other firms	Ref.	Ref.	Ref.	Ref.
Group with French ownership	0.0018	−0.0013**	−0.0013**	−0.0006
	(0.0015)	(0.0005)	(0.0006)	(0.0007)
Group with foreign ownership	−0.038**	−0.007	-	-
	(0.015)	(0.006)	-	-
Turnover	−0.0014	0.0017***	0.0013***	0.0013**
	(0.0014)	(0.0005)	(0.0004)	(0.0005)
Employment	0.0058***	−0.0003	0.0016***	0.0037***
	(0.0015)	(0.0005)	(0.0005)	(0.0007)
Labour productivity	0.0004	−0.0010**	0.0000	0.0000
	(0.0012)	(0.0004)	(0.0006)	(0.0007)
Mean of the dependent variable	0.62	0.15	0.15	0.74
Number of observations	38,252	22,702	27,596	38,645

Notes: The sample for these analyses is restricted to exporting firms surviving at least 6 years. The number of observations varies across the different regressions because the time coverage of the public support varies across the public supports. Columns (1) to (4) estimate the likelihood of an innovation subsidy, an international loan, innovation loan and investment loan respectively. For instance, public support started in 2005 for innovation loans and 2007 for international loans. Each model includes industry, cohort and year fixed effects. Coefficients represent marginal effects at the mean. Robust standard errors clustered at the firm level are in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% levels, respectively.

investment loans may be more subject to the existence of domestic collateral; in this case, late exporters – which are by definition better established domestically than their born-global counterparts – would be in a better position to apply for and/or obtain this type of loan.

An interesting additional finding is that productivity is never a feature that favorably distinguish firms that receive support, regardless of the type of aid considered. Only firms' turnover and employment favorably distinguish firms that receive loans from their counterparts that do not. This finding suggests that selection into public loans could be related to size (through assets) more than to efficiency, which could be a sign of misallocation.

We further find that firms affiliated to a French business group are significantly less likely to obtain international and innovation loans than other firms.[19] As a matter of fact, no foreign groups' subsidiary obtained investment or innovation loans in our sample, explaining the missing coefficient in columns 3 and 4. We guess that the main reason for this is that none of these affiliates meets the eligibility criteria to be independent or owned below 25%. For the ones of them that are eligible but would not apply, as for instance a firm owned at 20%, this could be explained by the fact that new-born firms affiliated to a larger foreign company might serve as off-shored export platforms (Irarrazabal *et al.*, 2013; Tintelnot, 2017). They would then be less likely to apply for loans as they can count on resources from a large and financially robust owner. Interestingly, new firms affiliated to a foreign company are also less likely than independent firms to obtain an innovation subsidy. This can be interpreted two ways: either Bpifrance has a kind of home bias in the allocation of innovation subsidies, or new firms affiliated to foreign companies are on average more likely to be owned at more than 25% of their capital than their counterparts held by French companies, hence less likely to meet Bpifrance eligibility criteria.

In a complementary exploratory exercise (reported in the Online Appendix S2, Tables S2-4 to S2-6 – Link to Online Appendix at the end of the article), we further analyzed whether the likelihood of obtaining public funding varies with firm export strategy as an attempt to provide a better sense of the factors influencing the allocation of different types of financial aid. We find first that born globals with above median number of destinations, number of products or product quality are more likely to receive international loans. This is consistent with the fact that firms with a more offensive export strategy need financial support for their internationalization strategy. Second, we find that born globals with number of destinations above the median and those with number of products below the median are less likely to obtain investment loans. This is consistent with the idea that innovative firms, which develop a small number of highly specific products for the global market, are considered as riskier and then face higher barriers to investment loans. Finally, we find that firms with a product scope and product quality below the median are more likely to receive an innovation subsidy. This is in line with the fact that firms that face competitiveness challenges seek to innovate in order to strengthen their position.

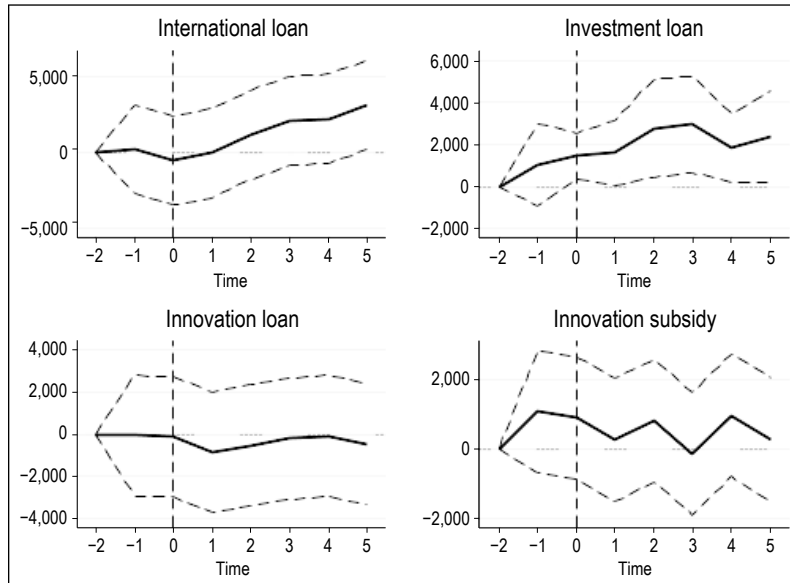### 3.3. Effect of Public Support on Born Globals' Performance

We now analyse whether born globals that benefit from public financial support have any distinctive features in terms of their *ex post* economic performance.[20] We first examine the born globals' turnover before and after receiving Bpifrance aids. Figure I shows the coefficient and confidence intervals associated with the coefficient δ_k of equation (2) for $k = -2,..,5$, estimated alternatively for each type of aid.

We find that the effect of international loans on born globals' turnover is quite substantial. Born globals that received an international loan in t^* have an average turnover €4,000k higher than born globals that did not receive this type of loan, 5 years after receiving it. We also find that born globals that received an investment loan have a higher turnover in t^*+5 (€2,000k on average) than born globals that did not receive this financial aid. However, there is already a significantly higher turnover at the time of the loan, which violates the no pre-trend differences assumption. We are more cautious on interpreting this result as a causal effect of investment loan on born globals' turnover since we cannot exclude a selection bias of the largest firms towards public aid granted by Bpifrance. On the other hand, we do not observe any significant effect of investment loans, innovation loans or innovation subsidies.

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19. It is worth mentioning that the identification of a business group's subsidiary is subject to important size thresholds, as detailed in the data section, so there are very few subsidiaries in our sample (see Table A1 in Appendix for more details).
20. The same series of results for born exporters and late exporters are presented in the Online Appendix S2 (Figures S2-I to S2-VI).

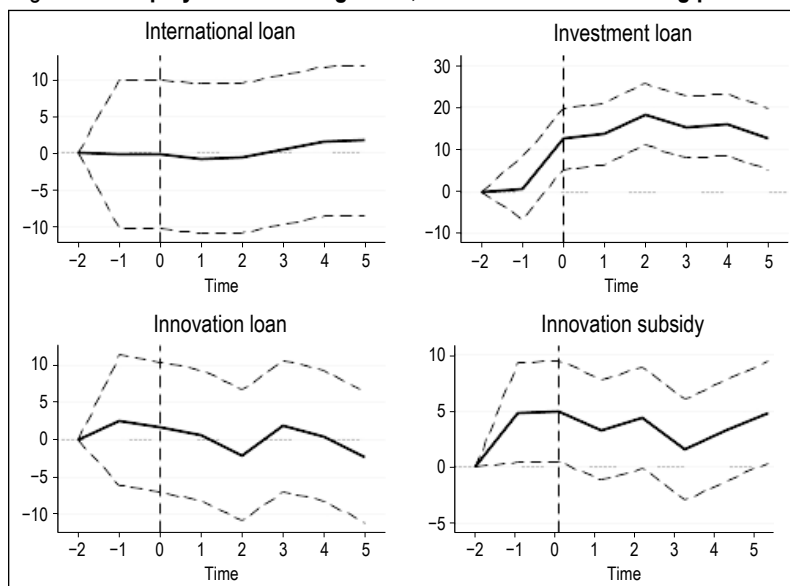Figure I – **Turnover of born globals, before and after receiving public aid**

We perform the same exercise when the dependent variable is the firm's total employment instead of turnover (Figure II). On average, born globals that have been granted with an investment loan in t^* employ 10 more employees than their ungranted counterparts between t^* and t^*+5. The same conclusion holds when considering the impact of innovation subsidies on employment, but with a differential of 5 employees. However, as for the effect of investment loans on born globals' turnover, we find a significant difference in employment at the time that the firm received the loan (even in t^*-1

for innovation subsidies). It is then also possible that the born globals that received this financial aid were larger than their counterparts at time t^*. It is thus difficult to attribute a causal size effect of investments loans and innovation subsidies because of a significant size difference at the time of the grant. We do not find any significant effect of international and innovation loans on employment.

Finally, the results of the same exercise performed on *Labour productivity* (Figure III) reveal no significant difference in labour

Figure II – **Employment of born globals, before and after receiving public aid**

Notes: Same notes as in Figure I apply, except that the dependent variable is now the firm employment.

Figure III – **Productivity of born globals, before and after receiving public aids**
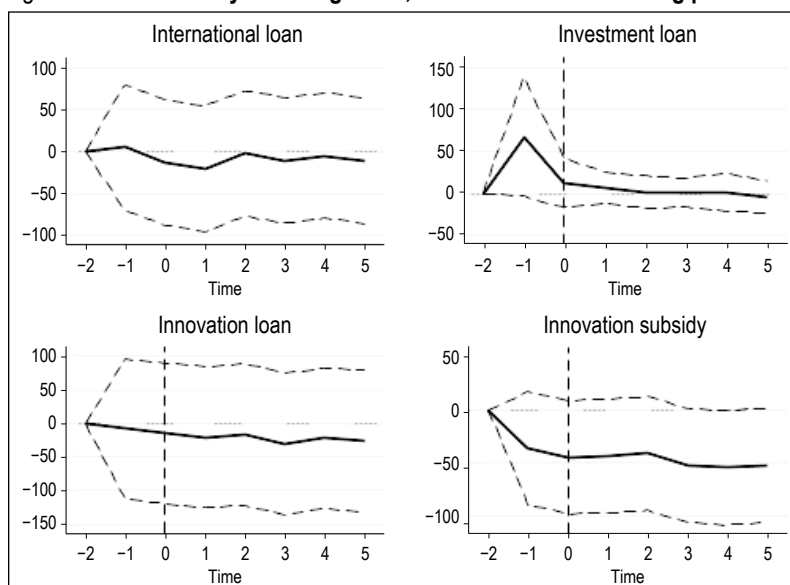
Notes: Same notes as in Figure I apply, except that the dependent variable is the firm labour productivity.

productivity before and after receiving public aid, whatever the public aid.

As robustness checks, and to account for pre-trend differences between granted and ungranted born globals, we report new estimators for staggered setting of the public support, as provided by Callaway & Sant'Anna (CS 2021 in Table 6) and Borusyak *et al.* (BJS 2022 in Table 6). As explained by de Chaisemartin & D'Haultfoeuille (2022), implementing two-way fixed effects regressions as we propose in equation (2), requires validating two assumptions that are, in practice, rarely satisfied. The first condition is that the parallel trends hypothesis holds and the second is that the treatment effect should be constant, between groups and over time, which is often an implausible assumption, especially in our setting where the timing of allocation of public support and the amount of public aid varies across firms. We then use two recent estimators made available by Callaway & Sant'Anna (2021) and Borusyak *et al.* (2022) to account for the limitations of the two-way fixed effects method proposed in equation (2). Both methods deal with "forbidden comparisons" in the measure of the average treatment effect (de Chaisemartin & d'Haultfoeuille, 2022).[21] They both have their pros and cons, because they rely on different parallel trends assumption. Borysyak *et al.* (2022) requires a "strong" parallel trend for every group and every period. Callaway & Sant'Anna (2021) impose a "weaker" parallel trend required only one period before the treatment, conditional on covariates. Under the parallel trends hypothesis specific to each method, the estimator proposed by Borusyak

et al. (2022) offers a higher precision than the one of Callaway & Sant'Anna (2021). However, if trends are not exactly parallel, the estimator of Borusyak *et al.* (2022) may be more biased than the one of Callaway & Sant'Anna (2021).

As Figures I to III make clear, it is hard to immunize against differential trend for all cases. There are some significant differences between granted and ungranted born globals the period before the treatment (e.g. innovation subsidies in Figure II). Therefore, as it is customary in the literature, we only interpret coefficients from Borusyak *et al.* (2022) and Callaway and Sant'Anna (2021) in Table 6 when they are close in magnitude, because any significant difference between the two estimators implies a violation of the strong version of the parallel trend assumption (Roth *et al.*, 2022).

Table 6 shows a significant effect of innovation subsidies on employment. Born globals that receive innovation subsidies have on average 6-8 more employees than born globals that do not. We also find a positive effect of investment loans on born globals employment and turnover.[22] All other results present differences in sign and/or magnitude, which is why we prefer to remain cautious about interpreting them due to failure

21. *With staggered rollout as in our setting, equation (2) leverages comparisons between firms that received public support and reference groups which had received it earlier. This represents a "forbidden comparison" because they can substantially distort the weights the estimator places on treatment effects since weights are decreasing in t.*

22. *We are very confident in these conclusions because they are robust to additional finer or coarser specifications. Specifically, we estimated the influence of public support on born globals alternatively using a simple fixed effect estimator and the Arellano-Bond (1991) estimator to a dynamic equation. The results are presented in the Online Appendix S2.*

Table 6 – **Two-way fixed effect with heterogenous treatment effects**

	Turnover		Employment		Labour productivity	
	BJS (2022)	CS (2021)	BJS (2022)	CS (2021)	BJS (2022)	CS (2021)
Innovation subsidies	818.1*	2,178.70	**8.66*****	**6.08***	−4.34	0.99
	(470.70)	(2,408.90)	**(2.75)**	**(3.64)**	(7.93)	(7.10)
Innovation loans	946.16	287.10	6.61**	1.75	−14.56	−5.71
	(741.21)	(755.23)	(3.00)	(2.16)	(10.76)	(4.82)
International loans	1,066.28	351.58	5.37***	1.31	−8.73	−1.54
	(690.23)	(736.30)	(1.53)	(1.28)	(10.42)	(10.77)
Investment loans	**2,040.28*****	1,492.34*	15.33***	9.61**	−22.34**	−33.83
	(398.61)	(906.90)	(1.59)	(4.43)	(9.52)	(25.10)

Note: The coefficients reported represent the average treatment effect on the treated following Callaway & Sant'Anna (2021) methodology (columns CS (2021)) and the one of Borysyak *et al.* (2022) (columns BJS (2022)). Estimates control for *Firm size, assets*, and *Firm ownership* on the sample of Born globals. Robust standard errors clustered at the firm level are in parentheses. ***, **, and * indicate significance at the 1, 5 and 10% levels, respectively.

of the strong parallel trends assumption for all periods before the event.

Overall, our results show that born globals receiving investment loans have higher turnover or employment after receiving the aid than before. However, we do not find an effect of the different types of financial aids on the labour productivity of born globals.

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In this study, we use a unique database combining comprehensive information on the production and export activities with information on the public aid granted by Bpifrance for newly established French manufacturers. Thanks to this information, we shed new light on the born-global phenomenon in French manufacturing and insights for the policy debate about how to support those specific firms, if at all.

We first provided descriptive evidence on the probability to receive different types of public aids granted by Bpifrance for different types of exporters. We also provided a first quantification of the impact of financial public aids on the relative economic performance of born globals. Our main result is as follows. Born globals are, on average, more likely to receive public support on their innovation and internationalization strategies and less likely to receive public support on their investment projects, than firms which export more gradually. By contrast, the overall return of investment loans granted by Bpifrance to born globals is high on both their turnover and employment. We interpret these results as suggesting that there is room to improve the allocative efficiency of loans granted by Bpifrance, especially those targeting the investment projects of born globals.

Regarding further research, one interesting direction would be to investigate the sources of inefficiency in the allocation of public financial support in France. This would require overcoming data limitations and accessing additional information on firms applying for public grants but being rejected. Another fruitful research avenue would consist of further investigating the extent to which the positive relationship between public support and the performance of born globals is conditioned by the amount of the financial support and by the complementary use of different instruments. Such complementary effects between investment loans and innovation subsidies to support the development strategy of start-ups have been recently demonstrated by Hottenrott & Richstein (2020) in the case of Germany. It would be interesting to further explore these complementary linkages in the case of French born globals. □

Link to the Online Appendix:
www.insee.fr/en/statistiques/fichier/7661150/ESpreprint_Bellone-et-al_OnlineAppendix.pdf

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APPENDIX

Table A1 – **Summary statistics of our key variables of interest by alternative samples**

	Raw sample		Cleaned sample		Intermediate sample		Final sample	
Firm type	% of obs.		% of obs.		% of obs.		% of obs.	
Domestic firms (Non exporters)	89.26		83.03		88.46		82.61	
Born globals	2.49		4.43		1.89		2.77	
Born exporters	5.41		8.84		5.93		8.14	
Late exporters	2.84		3.70		3.72		6.47	
Accounting variables	Mean	*Std. Dev.*	Mean	*Std. Dev.*	Mean	*Std. Dev.*	Mean	*Std. Dev.*
Turnover (k€)	1,583.40	*66,450*	3,523.80	*89,633*	678.60	*2,194*	970.07	*2,516.1*
Employment	7.19	*87.72*	18.01	*148.44*	7.00	*10.68*	7.71	*11.21*
Labour productivity (k€)	52.12	*208.50*	55.37	*179.26*	52.88	*63.48*	53.52	*57.30*
Tangible assets (k€)	579.00	*27,812.0*	1,239.40	*37,783.0*	157.93	*879.6*	229.50	*971.3*
Intangible assets (k€)	126.81	*5,854.2*	269.17	*7,549.2*	63.47	*423.4*	80.60	*270.3*
International variables	Mean	*Std. Dev.*	Mean	*Std. Dev.*	Mean	*Std. Dev.*	Mean	*Std. Dev.*
Export intensity (%)	9.99	*29.30*	12.38	*21.01*	7.76	*16.84*	7.94	*17.01*
Destination scope	5.14	*9.66*	6.15	*10.72*	6.05	*10.58*	8.15	*11.66*
Product scope	7.55	*31.10*	9.12	*35.45*	9.07	*35.65*	12.23	*40.18*
Market scope	20.44	*153.95*	25.64	*177.17*	25.33	*178.04*	35.69	*202.02*
Product quality	−0.69	*1.18*	−0.71	*1.15*	−0.71	*1.15*	−0.68	*1.07*
Public support variables	% of obs.	*Amount (€)*	% of obs.	*Amount (€)*	% of obs.	*Amount (€)*	% of obs.	*Amount (€)*
Innovation subsidy	0.68	134,833	0.80	135,095	0.80	134,919	0.62	197,666
Innovation loans	0.13	299,819	0.15	306,988	0.15	305,027	0.15	318,989
Investment loans	1.20	692,945	1.44	718,567	1.46	718,239	0.74	699,519
International loans	0.10	434,549	0.13	441,595	0.13	439,731	0.15	408,585
Other firm characteristics	% of obs.		% of obs.		% of obs.		% of obs.	
Operates in a MHT/HT industry	16.66		17.79		16.60		16.94	
Has an affiliation with a foreign group	0.04		0.04		0.02		0.02	
Has an affiliation with a French group	2.25		2.43		1.57		2.16	
Number of observations	1,570,869		500,933		475,931		244,061	
Number of firms	317,095		101,470		96,434		24,399	

Notes: The *Raw sample* includes all observations of newborn manufacturing firms over our period of observation. The *Cleaned sample* excludes inconsistent values defined as negative values for employment and for turnover, strictly negative values for value-added and for assets and values above 1 for the ratio of export over sales. The *Intermediate sample* additionally exclude firms with a size at inception which is in the top 1% of the firm size distribution. Finally, the *Final sample* additionally exclude firms which do not survive at least 6 years.

Table A2 – **Summary statistics of our key variables of interest by firm type, final sample**

	Born globals		Born exporters		Late exporters		Non exporters	
Accounting variables	Mean	*Std. Dev.*	Mean	*Std. Dev.*	Mean	*Std. Dev.*	Mean	*Std. Dev.*
Turnover (k€)	4,195.3	*7,761.1*	2,864.9	*5,904.3*	1,731.1	*3,812.9*	615.5	*1,010.4*
Employment	20.1	*31.8*	16.2	*21.9*	10.8	*16.9*	6.2	*6.9*
Labour productivity (k€)	73.7	*137.2*	61.3	*64.4*	61.2	*59.1*	51.4	*47.1*
Tangible assets (k€)	1,078.8	*2,819.1*	635.3	*2,338.5*	446.0	*2,297.7*	143.9	*414.9*
Intangible assets (k€)	224.5	*799.6*	139.7	*615.5*	69.6	*333.9*	70.8	*162.1*
International variables	Mean	*Std. Dev.*	Mean	*Std. Dev.*	Mean	*Std. Dev.*	Mean	*Std. Dev.*
Export intensity (%)	33.40	*26.6*	4.50	*9.3*	1.40	*6.3*	-	-
Destination scope	9.94	*11.6*	3.70	*4.8*	1.90	*3.6*	-	-
Product scope	8.83	*12.4*	4.30	*6.7*	2.40	*3.4*	-	-
Product quality	−0.75	*1.2*	−0.75	*1.2*	−0.72	*1.4*	-	-
Public support variables	% of obs.	*Amount (€)*	% of obs.	*Amount (€)*	% of obs.	*Amount (€)*	% of obs.	*Amount (€)*
Innovation subsidy	1.64	*81,262*	0.83	*57,337*	0.58	*35,054*	0.05	*42,281*
Innovation loans	0.38	*263,461*	0.35	*244,554*	0.22	*237,169*	0.02	*188,164*
Investment loans	0.75	*344,941*	0.62	*370,092*	0.76	*326,574*	0.10	*178,179*
International loans	0.61	*205,865*	0.32	*259,976*	0.11	*162,777*	0.00	*107,600*
Other firm characteristics	% of obs.		% of obs.		% of obs.		% of obs.	
Operates in a MHT/HT industry	41.17		32.75		28.68		13.63	
Has an affiliation with a foreign group	1.40		0.43		0.08		0.02	
Has an affiliation with a French group	39.90		34.00		20.10		6.58	

Notes: Firm categories are defined as in Table 1. Employment corresponds to the average number of full-time equivalent employees. The number of exported products is counted using the 6-digit product nomenclature. The number of destinations corresponds to the number of different foreign countries served by the firm. The number of markets corresponds to the number of distinct product-destination pairs. A lower (more negative) value of our product quality index means a higher average quality for the firm export portfolio. MHT/HT industries are identified according to the OECD definition of medium-high-tech and high-tech industries