Businesses and governments are inextricably connected and in the competitive global marketplace, governments support domestic enterprises in their pursuit to enter and grow in foreign markets. The question of whether or to what extent the support is effective is subject to debate. This dissertation asserts that the simple yes or no question regarding the usefulness of export support is an inadequately posed research question as it does not delve into the underlying dynamics and thus does not reveal the complete picture. The three dissertation essays examine nuances of government export support previously not discussed in the literature and the main body of the dissertation places the essays in the context of the wider economy and the literature on firm internationalization. Consequently, the dissertation expands on the theoretical understanding of the contextual factors at play. If the various relevant aspects are taken into account at the development and design stages of government support programs, the resulting support instruments will have a greater impact on the achievement of export and internationalization goals.
Essays Evaluating the Impact of Government Support on Exports

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Abstract

In this thesis, I report a set of three studies designed to enhance our understanding of the impacts of government assistance on export. In two essays I employ empirical methods, which are the standard practice of government export support efficiency studies but with modifications regarding the theoretical models. These are followed by a conceptual essay that poses and discusses some research questions that are useful to ask in designing export support and in planning the evaluation studies.

In the first essay, longitudinal population data of Estonian SMEs enabled me to compare and contrast the impacts of three government support instruments: support to attend a trade fair, to develop an export plan, and participation in a ministerial visit abroad. I describe how the interpretation of impacts differs in various dimensions of time - chronological "clock" time, "stopwatch" reference time, time sequence, and effect length time. By employing separate statistical tests to correspond to the use of multiple instruments, I also propose an optimal sequencing of the support.

In the second essay, the dataset of innovative Chinese exporters allowed me to connect their innovation data with government R&D and export figures and survey data on motivational aspects within the firms. Borrowing from evolutionary economics, I establish a theoretical model of two rounds of "variation" and "selection" that explains the stepwise impact to exports and the reasons for failures in each stage.

In the third essay, I extend the discussion on time aspects from the first essay and the evolutionary dynamics from the second essay, and include a fundamental question from development economics - How to best target the aid? In particular I raise the question - What are the implications of allocating support to a greater or fewer number of firms and what are the tradeoffs?

By combining empirical studies with conceptual discussions and including insights from other fields to a fairly traditionally empirical field of export support studies, I uncover some rarely acknowledged and discussed aspects of it. I also demonstrate that it is insufficient to merely discuss whether the government export support had a positive impact or not. Instead studies of export support need to adapt to a wider array of research questions. Further, the insights gained from a richer set of studies can then be used in designing better targeted and more impactful export support programs.

Keywords government support; exporting; time dimensions; optimal sequence; innovativeness; extrinsic and intrinsic motivators; variation; selection; targeting; decision errors

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It is widely recognized that a dissertation is supported by a team of many people. Below I thank a few people who have helped to make it happen. The title of my dissertation might suggest that what follows is a very specific discussion and its object is indeed an empirical phenomenon in the field of International Business (IB) but the reader can see references and discussion that link to classical economics, theories of evolution, psychology and even quantum cosmology, all of which have inspired me along the way. Another widely used metaphor states that scientific progress stands on the shoulders of giants. A big thank you to all those shoulders!

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I am also very grateful to my pre-reviewers Professor Saeed Samiee and Professor Lianxi Zhou for their insightful comments. Their remarks made me reflect on my choice of methods as well as the theoretical positioning of my approach. Further, several of their observations concerned the wider global trade contexts and the positioning of my contribution against the backdrop of discussions on topical issues in world trade policies.

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Priit Tinit
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LIST OF ESSAYS

This doctoral dissertation consists of a summary and of the following essays, which are referred to in the text by their numerals:

Essay #1:

Essay #2:

Essay #3:
PART 1: SUMMARY
1 INTRODUCTION

1.1 Of Government Support Leading to Exports

“Political œconomy, considered as a branch of the science of a statesman or legislator, proposes two distinct objects: first, to provide a plentiful revenue or subsistence for the people, or more properly to enable them to provide such a revenue or subsistence for themselves; and secondly, to supply the state or commonwealth with a revenue sufficient for the public services. It proposes to enrich both the people and the sovereign.”


The times have changed since Adam Smith published The Wealth of Nations in 1776. But what has not changed is the desire to prosper. The Wealth of Nations discusses exports, but government export support did not exist, as it does today, as a standardized service available to a majority of firms. This dissertation differs from many other dissertations in that it does not start by describing a gap in the literature but instead with the discrepancy that exists between theories and practice. My dissertation topic was motivated, in part, by my previous experience. Prior to starting my Ph.D. studies, I worked at a government ministry, in a department in charge of national economic policies, including the design of support measures for enterprises. As is common, especially in smaller and emerging economies, one of the ministry’s strategic goals was increasing exports. In order to progress towards that goal, the ministry and its government agencies had arranged a number of export support measures aiming at facilitating firms’ export growth by developing the necessary capabilities, fostering international sales contacts, and providing market information to establish foreign sales networks.

During the coursework for my Ph.D. studies, I became acquainted with the existing theoretical models for firm internationalization. In relating these to my personal experience, I noticed that none of them discussed the role of government support services beyond a general discussion of institutional quality, the role of networks, or similar aspects. According to the
feedback surveys, beneficiary firms generally find these services useful, although such participant surveys are subject to a positive bias. As government agencies generally consider their services useful for internationalization and there is a common understanding that the taxpayers’ money is spent with the goal of increased revenues in the future, which primarily benefits the firms, there was a discrepancy between the academic theories and the views of policymakers. I wondered why. The following were the two most plausible potential explanations:

1. Government support is not as helpful to firms and national economies as governments perceive it to be or
2. Models for the internationalization of firms have missed an important piece of the puzzle.

This dissertation is an exploration of these initial musings. Undoubtedly, my knowledge of what has been accomplished in the literature and also my understanding of how government export support works has greatly improved during my Ph.D. journey and I learned that International Business literature can also better inform public policy (Lundan, 2018). Similarly, my research questions developed over time. When I began work on my dissertation essay #1, my original research question was: “What ‘works’ in governmental assistance in small and medium-size enterprise (SME) internationalization?” Importantly, I did not intend to claim that export support is only relevant to SMEs, I was directed there as a consequence or my review of previous literature and a suitable empirical sample that was available. Technically, this question could be answered by using a series of statistical tests. However, the resulting coefficients would only reflect their usefulness for a particular sample for the source country in the context of the selected time frame. In other words, empirical research lacks universality and attempts to link it to contexts across countries and modes of support in order to establish more holistic theoretical frameworks have not been made. My search for answers led me to discuss more complex issues, such as when is the best time and what is the best way to measure the impact of an intervention, what are the drivers and impacts, and how do decision processes affect outcomes.

The research purpose of dissertation essay #1 is to systematically explore whether and if so, how government assistance can advance the internationalization of SMEs and expand IB theory by analyzing the effectiveness of three separate government support mechanisms by dissecting their time dimensions. The empirical sample of SMEs was created from a dataset of a population of firms in which the number of large firms was very low. This
enabled me to expand on basic traditional ternary assessment of the impact (positive, negative, or no effect) by indicating when positive effects begin to appear, peak, and fade, as well as to suggest the optimal order for receiving the three types of support instrument. Essay #2 posed a two-step research question: “Does government support for innovation lead to increased innovation output and in turn to a larger proportion of sales in foreign markets?” This innovation-related study focuses primarily on large firms. The role of this essay is to demonstrate that there are moderating and mediating variables influencing the pathways for reaching greater export performance. Finally, essay #3 does not posit any hypotheses but instead discusses other relevant aspects of government export support that had received little or no attention in prior IB and management literature.

Through a combination of two empirical essays and one reflective conceptual essay, the research questions have guided me to take a more granular and refined look at some of the issues related to government export support. I further argue that empirical research on government export support should not be limited to conducting sets of statistical tests. It must be placed within the context of the design of a particular support instrument, the development level of the national economy, and the timeframe in which the support is allocated and its impacts measured. With regard to my two initial hypotheses presented above, I suggest that there should be more research on government export support in relation to firms’ internationalization activities, as several important aspects related to it are missing. More research would also improve firm internationalization models.

1.2 The Essence of Government Support

“For some time after the discovery of America, the first inquiry of the Spaniards, when they arrived upon an unknown coast, used to be, if there was any gold or silver to be found in the neighbourhood. By the information which they received, they judged whether it was worthwhile to make a settlement there, or if the country was worth the conquering. Plano Carpino, a monk, sent ambassador from the King of France to one of the sons of the famous Genghis Khan, says that the Tartars used frequently to ask him if there was plenty of sheep and oxen in the kingdom of France. Their inquiry had the same object with that of the Spaniards. They wanted to know if the country was rich enough to be worth the conquering. Among the Tartars, as among all other nations of shepherds, who are generally ignorant of the use of money, cattle are the instruments of commerce and the measures of value. Wealth, therefore,
according to them, consisted in cattle, as according to the Spaniards it consisted in gold and silver.”


Much of the literature addressing government export assistance studies the effect of financial support directed at an export-related activity. The likely reason for this is that financial support is the most documented mode of support in secondary datasets. However, export support is not limited to financial assistance, which may not even be the most effective mode of support. For example, Ahmed & Brennan (2019) found that effective support for internationalization was provided not via direct finance-related export promotion programs but by indirect financial support to market development, loan guarantee schemes, and technical assistance. Moreover, a lack of information keeps many firms from undertaking international expansion. Information has always been a key to successful international trade, as illustrated by the interesting anecdotes in Smith’s magnum opus above. Note that in his example, trade information (in the modern sense) was collected by state proxies. Whereas Korhonen, Luostarinen & Welch (1996) found that inward international activities, such as training, do not receive as much attention or government support as directly export-oriented outward operations, the understanding has developed over time and portfolios of many export support agencies have extended their portfolios to include services that indirectly build the export capacity of firms. However, both the financial resources and the staff available to offer particular services has limits and every country faces tradeoffs in this regard. As a result, the various evolutionary paths and patterns created in national economies (Nelson, 1991) have produced a heterogeneity of services across countries (Evenett, 2019).

This dissertation also explores a variety of government support instruments: government support to attend trade fairs, government support to develop strategic plans, participation in ministerial visits to foreign countries (all three in essay #1), government support to research and development (essay #2). It also studies the implications of any government export support based on open applications (conceptual essay #3). These instruments provide the recipient firms with additional resources (from public funds), contribute to building export knowledge and export networks, and foster the export commitment of firms. In other words, these correspond to both inward and outward
internationalization activities, as described by Korhonen, Luostarinen & Welch (1996). However, the instruments cannot be directly linked to specific theoretical frameworks (views) of firm internationalization. In addition to the heterogeneity in types of government support, my research questions are also diverse, exploring various theoretical constructs that have been related to the empirical phenomena. In essay #3, I limit discussion of the implications of my dissertation not to certain export support activities but to the qualities relevant to their application. Figure 1, adopted from essay #3, illustrates the standard setting of export support studies. Figure 1b underlines features that are in my opinion rarely discussed yet relevant for analysis of the setup of such support instruments because the context has implications for its efficacy. These include features related to decision-making ex ante and ex post evaluation as well as the importance of considering the time context because positive effects take time to materialize and fade over time. The sequence of events and the improved framework for scrutinizing the impact of government export support is explained in more detail in essay #3. However, export support instruments may also differ in other parameters of the selection process (see Figure 1a) such as the period in which the supported activities are undertaken (A3). To illustrate this with examples from dissertation essay #1, activities supported by strategic export plans cause changes throughout the organization and may impact export activities for many years, whereas the duration of support – ranging from one-time trade fairs to ministerial visits – is limited to preparation or direct follow-up activities regarding the former and to the length of the latter.

**Figure 1.** Sequence of events in (a) selective government support studies and (b) aspects that are rarely discussed in the literature (in *italics*).
To conclude, the typical research question of export support studies is the following: “does government support (defined either by a particular instrument or by a survey question) have a positive impact on exports?” While this produces the most actionable insight for policymakers, theories of government support remain underdeveloped as a result. In my essays, I explore beyond the traditional yes/no questions and instead ask “what else matters?”

The multifaceted purpose of government export support is also one reason why it is difficult to link such support to a particular IB theoretical framework or to management studies in general. Beyond their role in firm internationalization, which is self-explanatory, these support programs are easily linked to a firm’s resources (or the resource-based view of the firm, RBV), knowledge (or the knowledge-based view of the firm, KBV), networks (or the network-based view of the firm, NBV) or wider institutional framework (or institution-based view of the firm, IBV). The same patchwork also applies to export-related academic literature. For example, the most recent review of export performance by Chen, Sousa & He (2016) pointed out that 39 of the 124 reviewed papers used two or three theoretical frameworks. A more thorough overview of theoretical frameworks and how they relate to government export support follows in section 2 of the Kappa.

1.3 The Scale and Scope of Government Support for Exports

“Merchants and manufacturers are not contented with the monopoly of the home market, but desire likewise the most extensive foreign sale for their goods. Their country has no jurisdiction in foreign nations, and therefore can seldom procure them any monopoly there. They are generally obliged, therefore, to content themselves with petitioning for certain encouragements to exportation.”
As the quotes from Adam Smith illustrate, the metamorphosis from the concept of benefits to the people and the sovereign to the implementation of petitioning for “encouragements to exportation” is an idea that has been long held. The idea of providing export support to firms originating in a country has been widely adopted in practice. This is rationalized by the difficulty of accessing foreign markets. Governments justify their support with anticipated returns to their national economies via increased competitiveness, which in turn brings additional tax revenue, provides jobs, and fosters innovation. Although it is likely that support activities will produce positive returns on public funds invested (beyond the benefits to the firm), there remains the need to assess the potential of beneficiaries in order to ensure that the support is spent on productive business development. The pool of such firms and projects is not unlimited.

The potential to generate returns for received support also varies by firm and industry. For example, according to an interview with an analyst from a Latin American country national export support agency, small firms often know little about exporting and the benefits thereof. Medium-sized firms, however, possess the relevant organizational competence and are therefore more likely to succeed in the endeavor. Furthermore, product specificity is an important factor in export success. The analyst mentioned that products directed to specific customers, especially if already linked mentally with the country, can generate a higher return on allocated support. Hence, all governments may at some point, depending on the national circumstances, opt for a more generous or more conservative approach. Although this has not been discussed in the International Business (IB) literature, it has been mentioned in research on development economics, for example, by Foley & Klugman (1997), who describe a ‘value judgment’ that occurs in deciding between making a wider or narrower targeting of support instruments (for further discussion see essay #3).

Although its impact and distortionary effects are growing, export support by governments is not widely discussed in the IB literature. As subsidies distort trade, World Trade Organization (WTO) has established rules and categories of subsidies, including the prohibited and actionable practices that can be taken to the WTO dispute settlement body. However, there are plenty of export support programs that are either approved (e.g. not providing direct support) or exist within the gaps in the international rules.
Evenett (2020) estimated that in 2020 export incentives affected approximately 65% of world trade, compared to just 30% in 2009 (see Figure 2). This figure reflects the state of affairs that existed prior to COVID-19, when the scale and scope of government support to business surged across the world. By and large, the new support mechanisms were established or consolidated due to the need to support business continuity. However, many countries tied support to the mandate to innovate or adopt greener business models, which in turn affected the export competitiveness of these firms. As the amount of time that has passed since COVID-19 disrupted businesses is brief and many temporarily established support measures are still ongoing, it is too soon to estimate the impact of these developments on countries’ export market shares. It is also beyond the scope of this dissertation. However, by empirically analyzing and discussing specific instances of government support and introducing new concepts to the discussion of the field, I contribute to the creation of a holistic understanding of the benefits and potential distortions.

Figure 2. The increasing impact of export incentives on world trade.
The graph was obtained from a presentation by Evenett (2020).
The trend of export agencies supporting firms in their foreign endeavors is global and is one in which most countries participate. National export promotion agencies are increasingly popular worldwide with their number tripling from 1990 to 2010 (Lederman, Olarreaga & Payton, 2010). However, research in the area has not kept pace with the increased number of programs and budgets allocated to them (Freixanet, 2012). Establishment of new agencies peaked at two times: in the early 1970s and to a greater extent in the late 1990s (see Figure 3). These agencies and the instruments that they offer are well established within the national legal frameworks and multilateral cooperation treaties, such as WTO and regional trade agreements. Therefore, the literature on these government export support measures is clearly distinguishable from discussion on the implications of non-market strategies and the informal relations between firms and governments. To some extent, the growth demonstrates the effect of mirroring economic policies among countries worldwide, and the sharing of policy practices, which stems from the idea that every country will benefit from establishing such institutions and support measures. On the other hand, there is also a consequential need for such institutions, as the more export support programs are set up, the more informed these activities are. The result is a growing gap between the activities of governments that follow the practices and those that do not. Hence one can argue that there is a race to spend more, with no clearly established ex post link between the benefits and returns accruing from the additional services. However, trade distortions are an unfortunate side effect of any non-market-based support measure that favors host country firms over their foreign competitors.
Lederman, Olarreaga & Payton (2010) categorized the services offered by these export agencies into four groups: country image building, export support services (including capacity building and technical assistance), marketing, and market information. Arguably, the importance of any particular services depends on the stage of the country’s economic development. For example, one can presume that country image building is most relevant for emerging economies when they are creating awareness and promoting an image of reliability, as exporters from these countries face not just the liability of foreignness (Zaheer, 1995) due to the direct and indirect costs of doing business abroad (Eden & Miller, 2004; Zaheer, 2002), but also the liability of origin (Ramachandran & Pant, 2010), according to which the country-of-origin may carry legitimacy-based and capability-based disadvantages. Nevertheless, Samiee (2010) found that the country image construct is far from as simple as the country-of-origin literature suggests, as it is influenced by for example salience, labeling practices, and separation of brand origin and production location. On the other hand, various authors treat government export support differently and as there is no universal typology, its definition is blurry.

I aim to be general in my definition, and follow Seringhaus’ (1986, p. 55) interpretation: “Broadly, export promotion refers to all public policy measures that actually or potentially enhance exporting activity either from a firm, industry or national perspective.”
This includes government export marketing assistance, which comprises “standardized and customized market information and guidance on exporting and export marketing; assistance to firms ranging from researching specific foreign markets, individual or trade mission market visits, trade fairs to actual market entry” (ibid.). This statement is not a comment on what is not included. Support that is outside the scope of this paper includes services provided by non-governmental parties such as trade associations and chambers of commerce or consulting firms. For practical purposes, the overview does not scrutinize tax incentives as these are not obtained through an assessment-based application procedure, but through familiarity with tax regulations. Thus, it is more difficult to identify which firms receive them. Also, financial services (e.g. preferential interest rate loans, export credit insurance) other than financial support are outside the scope of this dissertation.

1.4 Benefits of Export Support

“That foreign trade enriched the country, experience demonstrated to the nobles and country gentlemen as well as to the merchants; but how, or in what manner, none of them well knew. The merchants knew perfectly in what manner it enriched themselves. It was their business to know it. But to know in what manner it enriched the country was no part of their business.”


Indeed, the public welfare, which is beyond that of employees and direct stakeholders, cannot be the focus of a firm’s business. However, policymakers and academics have come to realize that the revenues businesses generate to meet their interests are usually beneficial to the wider society. This is especially so for export income, which comprises by definition additional proceeds not earned through domestic excess pricing due to a lack of competition or monopoly power. There is a difference between the approaches of economists and econometricians, who primarily apply the macroeconomic perspective and often focus on national welfare generation via the increased productivity, and international business scholars, who explore firm-level effects and developments (the micro-perspective relative to the economists or the meso-perspective if one considers employee or team level as the micro-
level). These points of view are difficult to reconcile as productivity makes the most sense if analyzed at the national or sectoral level. Although there is firm-level research which observes changes in productivity measures (most frequently measured in total factor productivity or some other synthetic metric for residual growth), these are difficult to interpret in the context of the firm and its activities. Therefore, export researchers have often compromised by using rather basic indicators for objective performance (such as export intensity, which measures the share of export sales in total sales) or subjective export performance through surveys. This simplification relies on the assumption that for most firms achieving success in foreign markets is more challenging than in domestic markets, and that progress in exports also reflects other achievements by the firm (e.g. product development) and results in other benefits (e.g. higher profit margins).

Export markets are often more competitive and certainly more challenging for firms due to differing business customs and the liability of foreignness (Zaheer, 1995). Governments therefore set up export support programs to support the competitiveness of their firms’ products and services. Public export assistance has been found to be beneficial for export propensity (Broocks & van Biesebroeck, 2017), export intensity (e.g., Wilkinson & Brouthers, 2000), aggregate exports (e.g., Lederman, Olarreaga & Payton, 2010), and increased resiliency during times of global crisis (van Biesebroeck, Konings & Martincus, 2016). Numerous studies assert that smaller firms benefit more from export promotion actions than larger firms (e.g. Leonidou, Palihawadana & Theodosiou, 2011; Monreal-Pérez & Geldres-Weiss, 2019; Martincus & Carballo, 2010a). Unsurprisingly, much of the government support literature focuses on SMEs. However, there are also studies that do not find a positive impact from export support on various firm performance variables (e.g. Gençtürk & Kotabe, 2001).

Nevertheless, the impact of public support can reach beyond what is immediately measurable in a quantitative study. For example, government assistance can increase the legitimacy of firms’ activities (e.g. Suchman, 1995; Zhang, Ma, Wang, Li, & Huo, 2016) and supported firms may receive psychological benefits (Raitis & Pelto, 2021). Melitz (2003) argued that exports can be stimulated by both informational and market spillovers with benefits accruing to the more productive firms. The outcome additionality of public subsidies has also been studied in the research policy literature, via the behavioral/learning perspective (Clarysse, Wright & Mustar, 2009) and via prestige and additional resources (Söderblom, Samuelsson, Wiklund & Sandberg, 2015).
My research focus is on increasing export intensity, which is calculated as export sales divided by total revenues. What this synthetic variable demonstrates is open for discussion. There are arguments as to why linear progress towards a greater share of exports is affected by many factors unrelated to export opportunities, as well as to whether an increase is necessarily a positive development for firms (such as in the case of exporting to less developed markets). However, this is a simplification used by many researchers of government export support as a proxy for the increase in export activities using a variable that is not difficult to explain. According to several models of firm internationalization, progress from domestic market sales to increases in foreign sales is accompanied by a general increase in the sophistication of the firm’s activities, which often also leads to increased innovation and management quality and positive ESG developments. Furthermore, it is important to underline that my essays do not focus solely on SMEs. Even though essay #1 makes use of a dataset that includes only SMEs, in most countries government export support is not limited to SMEs, and its implications apply to all recipients.

1.5 Roads Less Travelled

“As every individual, therefore, endeavours as much as he can, both to employ his capital in the support of domestic industry, and so to direct that industry that its produce maybe of the greatest value; every individual necessarily labours to render the annual revenue of the society as great as he can. He generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. By preferring the support of domestic to that of foreign industry, he intends only his own security; and by directing that industry in such a manner as its produce may be of the greatest value, he intends only his own gain; and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest, he frequently promotes that of the society more effectually than when he really intends to promote it. I have never known much good done by those who affected to trade for the public good. It is an affectation, indeed, not very common among merchants, and very few words need be employed in dissuading them from it.”

In an empirically dominated research area with few existing theoretical frameworks, there are apparently only a few research pathways or blueprints to follow. Methodologically, this is apparently the case. However, any subject that has not become overly mainstreamed in the literature is likely to offer ample opportunities to pose research questions different from those commonly asked. The above ‘invisible hand’ quotation above, which is curiously the only reference made by Adam Smith to it in his Wealth of Nations, is not about markets. Instead, it refers to how individuals act in their own best interests. Although they do not have society at large in mind, their endeavors maybe in the public interest. The same applies to academics—the body of research advances primarily not from researchers trying to fill gaps but by individual authors presenting creative insights based on their own research interests. Similarly, this dissertation pursues some of the roads less travelled in the IB literature and returns with theoretical contributions that have relevance to other issues beyond the narrow scope of government export support.

The dissertation was not initially designed with a focus on a ‘theory-in-use’ approach (Argyris & Schon, 1974; Zeithaml et al., 2020) as it did not start from ‘hunting’ or ‘trapping’ the concepts, as described by Zeithaml et al. (2020). However, looking at the theory from both the researcher and the practitioner perspective yields similar results from these pursuits, and indicates a significant amount of outstanding work needing to be carried out to refine the concepts developed in this dissertation. The main keywords of these contributions are presented in Figure 4 and discussed in more detail below.
Drivers of Export Intensity

Determining what drives firm-level export intensity is one of the most commonly asked research questions in the export literature. Answers that are commonly provided are often general and relate to export commitment, resources, knowledge, networks, firm size, firm age or export experience, and distance between markets (inversely) (e.g. Bianchi & Wickramasekera, 2016; Majocchi, Bacchiocchi & Mayrhofer, 2005; Navarro-García, 2016). The same question is posed in the narrower field of export support research, and seeks specifically to determine the usefulness of specific instruments. The following are largely missing from the IB and management literature: 1) a comparison of various export support instruments and 2) a granular analysis of how organizational aspects may be moderators or mediators in relationships that lead to increased export intensity.

The question of which export support mechanism increases export activities most is in the mind of many policymakers because of its practical application as a basis for decisions in adjusting funding between programs. However, answering this seemingly easy question a bit
tricky because of incomparabilities and, in fact, there have been very few attempts to contrast various support instruments (my dissertation essay #1 is among the few). Cross border comparisons to establish universality of findings are even scarcer. The practical problem faced by researchers is that the instruments are related to their conditions. On their own, claims regarding the universality of results are inadequate and must be placed within the context of the host country and the specific business support environment. My essay #1 also raises the point that the various types of support are noncommutative, that is, the combined impact of multiple instruments depends on the order in which they are received. However, if the findings can be logically supported, they may allude to more generalizable outcomes. For example, in my essay #1, support for strategic export plans results in the most positive impacts. As this can be explained by the necessary holistic changes that occur in a firm and probably in its management practices, this finding will likely hold true for other samples and in other countries.

Second, the mediators and moderators relevant to government support and export performance are often disregarded in empirical studies. In my dissertation, I question whether success originates at the individual employee level and explore the role of extrinsic and intrinsic motivation schemes in firms. The list of potential moderators expressing organizational aspects within firms is long and in my essay #2 I merely scratch the surface of all the relevant relationships that can lead to export success. Therefore, I do not claim to study the complete model of R&D support to export performance, although I do examine a significant piece of the puzzle, and demonstrate that much more could be done with regard to mediated and moderated relationships.

**Time**

Empirical studies of government export support rarely explicitly discuss the time dimension chosen for them. However, when the impact of an event is expected to appear after a time lag, a critical understanding of time effects is crucial. Jones & Coviello (2005) discussed several dimensions of time that may be useful for empirical analysis of the internationalization of firms: chronological time, reference time, time sequence, time periods, time duration, time intensity, cyclical dimension, gap time, and rate of internationalization. Because each of these dimensions has a different perspective, it may be useful in approaching the analysis of time. Although the original article of Jones & Coviello (2005) was conceptual and did not develop empirical methods suitable for the listed time dimensions, it is clear that such distinctions would require rigorous application of coherent analysis methods. The
division of time into its components and patterns can improve the quality of research in two ways: by providing a robustness check to the overall sign (positive or negative) of the relationship and by informing about detailed aspects not revealed by the analysis of mere headline effects. As a word of caution, Goodman (2001) summarized in Ancona, Goodman, Lawrence & Tushman (2001) that theories about time lags are not useful for creating point estimates but can be employed in dynamic forecasting or in understanding the mechanisms behind the lags.

In dissertation essay #1, I present several time-related aspects relevant to measuring the impact of export support. In particular, I discuss situations in which reformulating the research hypothesis and repackaging the same dataset provide slightly different interpretations of the efficacy of support. I develop a quantitative framework with four possible ways to conceptualize time: chronological “clock” time, “stopwatch” reference time, time sequence, and effect length time. Although this is not an exhaustive list of timeframes relevant to quantitative studies, the methods I used could be applicable to intervention-based or event-based quantitative studies of other empirical phenomena in IB or management studies. In allocating government support, evaluations are conducted by a government agency. Therefore, in Figure 1a, these timeframes reflect the changing parameters in the bottom part of the diagram (i.e. government agency activities). In particular, shifting the time reference points implies selecting a different point in time for A3 in Figure 1a. Because results can be presented from a different perspective, every author should ask the following question: Is the time window selected for any empirical research justified beyond the usual data availability and can the same data reveal a seemingly different story if the research question is framed by another time dimension?

**Targeting**

Targeting the firms that should receive support is the most specific decision that an export support agency needs to make. As it involves individual firms, targeting is also trickier than setting general guidelines for support instruments and likely to be less straightforward than any other decision policymakers need to make. Due to the sensitivity of the issue, there are situations where the agency cannot reject applicants, as an interviewee from an export support agency mentioned to the author of the dissertation. In his case, the decisions need to be based on the amount of funding received or on applications for extra funding for the agency. However, even in these situations, the export support agencies are interested in
improving the efficiency of support allocation and generating the maximum public benefit for the amount spent.

When evaluating the impact of a support mechanism, government agency policymakers ideally check to see whether a budget increase of x euros will increase export revenues by y euros (via an interpretation of a regression coefficient expressing the relationship between x and y). Academic research can provide such answers by applying statistical methods. However, as soon as they are provided, they are misinterpreted. The crucial discounted aspect is that the export support provided by governments is likely to start a series of changes with the potential to transform a firm in multiple ways. Notably, its effects are not linear. Correlations and interrelations between desired policy goals are practical issues that can surface. Although the Tinbergen Rule of effective policies states that “for each and every policy target there must be at least one tool, and if there are fewer tools than targets then some targets will not be achieved” (Knudson, 2009). Policy targeting is even more important in the current age of seventeen UN Sustainable Development Goals that many governments seek to attain. In my dissertation essay #2, I look at an innovation-focused dataset to reveal that government support does not need to be targeted to exports to have a positive impact on them. In particular, I find that government R&D support may increase firms’ export intensity via mediation by innovativeness. In short, I demonstrate that although financial support need not be targeted at the particular policy end goal it is important to identify the pathways leading there.

Secondly, studies of government export assistance usually treat decisions to allocate support as binary events, sometimes on a continuous scale that corresponds to the extent of assistance in either financial or subjective terms. The implicit assumption is that the decisions are made with full information about the recipient and the future in order to assure the maximum return on the public investment. However, in practice, decisions are much less clear-cut; information is lacking, determining how to achieve the goal is difficult, human error is possible, and uncertainty about the future delivery of results prevails. As with decision accuracy in any sphere of life, apart from the true positive and true negative cases, there are also false positive and false negative results. All of these have their origins and implications, which can substantially impact firm internationalization patterns. The following is a more apt question for government export support studies: Under what set of conditions should one or another export support strategy (including a generous or a more thrifty approach) be preferred? A theoretical discussion on this issue is presented in dissertation essay #3.
Essay #3 argues that the generosity or conservativeness of export support allocation is not a trivial or merely political issue. Rather it is an important strategic question for export support agencies. Most notably, the generous allocation of support can be a conscious approach taken by emerging economies. Firms in emerging economies may create returns from uncomplicated activities (previously not carried out there but well established in developed countries) or have a more extensive level of unmet needs in terms of quality projects that cannot secure financing in an underdeveloped domestic financial market. However, attempts by government support agencies to reach underserved groups (SMEs, underdeveloped regions) in advanced economies (e.g. Isaksen & Remoe, 2001) fall into the same category. The focus on analyzing the needs of an entire economy and the target group characteristics within the economy can set the parameters for how many and which firms should be granted government support.

1.6 Structure of the Dissertation
The Kappa consists of two parts. Following the introduction, part one consists of four sections. Section 2 introduces the relevant literature and theoretical frameworks. In section 3, I outline my original contributions to theory. Section 4 presents the methodology used in the two empirical essays: essay #1 and essay #2. As the two studies are based on different datasets and employ different statistical methods, they are discussed separately. Section 5 briefly summarizes the three essays and section 6 concludes part one with a discussion of the findings and their implications. In part two, the original essays are presented in their full format.
Discriminatory trade policies have shifted from the use of trade barriers to increasingly pervasive export support measures and subsidies for firms by home governments (Evenett, 2019). In the IB literature, government support is rarely recognized as an option for business development and, if included, it is usually as an afterthought or barely mentioned (e.g. Gerschewski, Rose & Lindsay, 2015, p. 590), with no clear analysis or indication of how to categorize it vis-à-vis the established theories in management studies. One notable exception is Martineau & Pastoriza’s (2016, p. 465) review of SME internationalization studies which took explicit note of “government programs and other public policies” as an environment-level antecedent of SME internationalization and when grouped under “network (with their suppliers, customers and government)” as a firm-level antecedent. As these are two of the three most commonly framed levels in the management literature (the third being the individual level), it is evident that government support for business development fundamentally affects businesses.

Export support literature relies on IB literature on firm internationalization and drivers of export. Research on export assistance as a primarily empirical study object has not attempted to develop a holistic theoretical framework, and perhaps justifiably so, due to the wide variety of support instruments that it encompasses (see sections 1.1 and 1.2). Firm internationalization theories trace back to the Uppsala Model of firm internationalization (Johanson & Vahlne, 1977), which, with its updates, has been generally considered valid in most export contexts (notable exceptions of theories that claim otherwise are ‘born globals’, Oviatt & McDougall, 1994 and ‘springboard’ strategy; Luo & Tung, 2007). Export literature has linked success in export markets to resources (e.g. Bianchi & Wickramasekera, 2016; Navarro-Garcia, 2016), knowledge (e.g., Bianchi & Wickramasekera, 2016; Majocchi, Bacchiocchi & Mayrhofer, 2005), networks (e.g., Welch, Welch & Wilkinson, 1998) and institutions (e.g, Krammer, Strange & Lashitew, 2018). Importantly, it is very difficult to match specific export assistance vehicles with specific improvements in the firm, as the instruments usually address several aspects of firm development. Hence proxying a component of e.g. resource, knowledge, networks, or institutions with a specific type of support received is inutile. However, the common general drivers of export can be broadly aligned with a quality or a desired pathway of government export support. More often than not, export assistance by a government provides a firm with additional resources, is directed
at improving the export knowledge of the firm or developing its professional networks, and is related to institutional quality because it is provided by government agencies.

The positioning of government export support vis-à-vis theoretical frameworks is tricky. It is appealing to label it as an institutions-related factor but whereas it is true that agencies are the institutions that allocate support, discussion of institutions in the literature generally deals with either institutional quality or favorable treatments by institutions. Neither is the key component of government export assistance if it is awarded in a transparent and open application-based format. Support is also associated with resources, either directly as financial resources, or indirectly as improved access to knowledge, networks, or enhanced reputation. One of the aims of export support is capacity building, implying that knowledge and competence regarding export markets play an important role in its potential usefulness. Finally, such assistance is often instrumental in gaining access to closed circles and networks where follow-up activities may emerge, or in general may lay the groundwork for expanding business networks, such as in trade fairs or contact visits.

In my dissertation I discuss firm internationalization assisted by government export support in the frameworks of the Resource Based View (RBV), the Knowledge Based View (KBV), the Network Based View (NBV), and the Institution Based View (IBV), as these address firm-specific advantages or differences though frequently mentioned success factors in exporting. Moreover, literature reviews on export performance (Aaby & Slater, 1989; Bilkey, 1978; Chen, Sousa & He, 2016; Chetty & Hamilton, 1993; Zou & Stan, 1998) have also frequently used these theoretical frameworks, although Chen, Sousa & He (2016) identified a surprisingly large number, 42 different theories, that had been used to analyze the export performance of firms.

2.1 Theoretical Frameworks of Firm Internationalization

The subject of exporting receives surprisingly little attention in the IB literature. Current firm internationalization models include exporting, commonly as the initial step of international activities. However, many researchers consider it to be a precursor step towards intellectually ‘more interesting’ business activities, such as foreign direct investments, joint ventures, licensing or franchising. Nevertheless, exporting is statistically the most common mode of internationalization, and the majority of firms do not attempt or manage to reach more complex forms of international operations.

I structured the discussion of theoretical frameworks and the portrayal of government export assistance in three main framings for government export support: the resource-based
view of the firm (RBV), the Uppsala Model for internationalization, and the institutions-based view of the firm (IBV). At times, two other general sets of factors are used to describe either government assistance or export performance: the knowledge-based view of the firm (KBV) and the network-based view of the firm (NBV). As these views have not been treated sufficiently in related literature, I merged discussions thereof with more developed streams of literature, i.e. the literature on the KBV with the RBV (because the former has been developed from the latter, and the literature often treats knowledge as a type of a resource) and the NBV with the Uppsala model (because the Uppsala model, especially its later versions, makes abundant reference to the utilization of networks). There is an important difference in what the models aim to comprehend, in relation to government export assistance. RBV/KBV is focused on the inputs of internationalization but is somewhat less concerned with the process and even less concerned with the outcome. The Uppsala model is focused on the process and the outcome (such as export performance) of internationalization, but disregards the sources and inputs. IBV takes yet another slice of the pie: the environment, and to the lesser extent, the process. Hence for the holistic view, one cannot just compare their approach to government export assistance or export performance. Instead, a more thorough discussion of how the components are related is required.

The Resource Based View (RBV) and the Knowledge Based View (KBV)

Government export support provides recipient firms with additional resources they would not otherwise have access to. These resources could be direct financial or material resources or indirect and intangible resources. The resource-based view (RBV) (Barney, 1991; Wernerfelt, 1984) focuses on how inputs, characterized by VRIN principles (valuable, rare, inimitable, non-substitutable), can create and sustain a competitive advantage. The RBV has been used extensively to study firm advantages in strategic management (e.g. Armstrong & Shimizu, 2007; Newbert, 2007) and to a lesser extent to study export context (e.g. Dhanaraj & Beamish, 2003; Ipek, 2018). One of the drawbacks of using the RBV is its lack of a clear definition of resource. As early as 1995, Godfrey & Hill pointed out that the key constructs of RBV are unobservable. Furthermore, many variables that could otherwise have been treated as mere control variables have been defined as resources, for example: firm size as an organizational resource or firm age as an experiential resource (e.g. Ipek, 2018). In addition to the issues concerning variables, Armstrong & Shimizu (2007) warned that due to the sheer number of items meet the resource criteria, it is impossible to control for every important resource. KBV, the knowledge-based view of the firm, is an outgrowth of the RBV (Grant,
1996; Hoskisson, Hitt, Wan & Yiu, 1999; Sveiby, 2001). As knowledge barriers are one of the most significant hurdles to export (Kahiya, 2018), the dissemination of export knowledge and competence is one of the general aims of government export support programs (Seringhaus & Botschen, 1991; Shamsuddoha & Ali, 2006). The categorization is also justified by the (evolving) definition of knowledge. Grant (1996) noted that whereas earlier researchers treated knowledge in the within-individual context, the significance of knowledge in firms lies not in its creation but in its application. The reflection that it is more important to link knowledge to the firm and its processes than to individuals implies that knowledge is conceptually similar to vaguely defined organizational resources.

Per the RBV, if government support is rare (i.e. not allocated to all firms) and valuable, (improves the core activities of firms), a firm that receives government support gains an edge over its competitors. Generally, the RBV does mention the specific origins of resources. Sources may indeed be irrelevant from the firm perspective. However, as a rather clearly distinguishable category of resources, which are accompanied by specific institutional demands, the theory perspective could benefit from a comprehensive understanding of the nuances of resources originating from government support. It should also be noted that export assistance support is not a Ricardian type (rent-seeking) RBV resource, which some government activities may well be when they allow extraction of rents from a market advantage created by connections or lobbying. The relevant framing for open and application-based export support programs is Schumpeterian, where the entrepreneur needs to create the opportunity to take advantage of the assistance (there is a discussion of the two approaches in Curado & Bontis, 2006). This distinction means that government support is somewhat at odds with another duality within the RBV. The traditional approach of RBV researchers, according to which the firm should own or at least control the resources, was challenged by an entrepreneurial view of relationship capital and control through networks and collaborations (Kellermanns, Walter, Crook, Kemmerer & Narayanan, 2016).

Determining the ownership of assets acquired with the support of export assistance programs can be difficult; after a successful application, the resources come under the firm’s control (despite generally maintaining some recallability clauses). But before the application, the firm possesses an entrepreneurial relationship or knowledge resource; it is aware of which programs to apply to, how to complete a successful application, and occasionally how to make use of networks to consult or influence the application process towards a positive decision. In the spirit of the ambiguity of resources, one may also add reputation as an
intangible asset (Boyd, Bergh & Ketchen, 2010), which can often have an implicit but important influence on the decision to allocate support.

**The Uppsala Model and the Network Based View (NBV)**

The quotes presented in section 1 of the Kappa demonstrate that internationalization of business activities was a subject of scholarly interest in the 18th century. However, it took much longer for the frameworks of firm internationalization to develop. The first systematic review of the peculiarities of firms’ foreign operations was presented by Hymer (1976), via the costs of doing business abroad. The Uppsala model of firm internationalization (Johanson & Vahlne, 1977) was one of the first attempts to theoretically describe events occurring with a firm as it seeks to expand to foreign markets. This model describes typical firm internationalization in four incremental stages of increasing knowledge and commitment (sporadic export, export via representatives, foreign subsidiary, foreign manufacturing), saliently features export. At the same time neither these stages nor their later 1997 and 2009 updates to the state-change duality of the model make any mention of potential government support.

It is reasonable to suggest that a business knows its opportunities and activities best and is thus able take the full advantage of them. However, entering foreign markets is often challenging and allies can be useful in the endeavor. This is incorporated in several aspects of the Uppsala model, such as in obtaining market knowledge or reducing uncertainty. This idea was also expressed by Eriksson, Johanson, Majkgård & Sharma (1997), who confirmed the need to obtain experiential knowledge regarding markets, local laws, and local cultures through international activities. Nevertheless, they added that this comes with costs related to collecting and coding the knowledge and making organizational changes. The original Johanson & Vahlne article (1977, p. 31) briefly listed export stimulation measures to improve the ability to plan and execute the internationalization process. At the initial time of theorizing, empirical evidence on standardized government export support programs was scarce¹, therefore a short note is in order. However, if such vehicles were indeed useful to the majority of firms, or even to distinct groups, they should have merited inclusion in the framework via subsequent research, which in fact has not occurred.

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¹ Seringhaus' (1986) review of export marketing assistance found 21 empirical studies. With no exhaustive list of the included studies and dates provided, up to 10 of the references, which could have contained an empirical analysis, were dated before Johanson & Vahlne’s 1977.
Later updates of the Uppsala model (Johanson & Vahlne, 2009; Vahlne & Johanson, 2017) discussed and proposed addition of the role of networks and the effects of insiderness/outsiderness. This was a substantial change that made the model more generally applicable as it could also be applied in both domestic and less international contexts. (Forsgren (2016) commented that the main difference between domestic and foreign networks is the liability of foreignness in foreign operations.) The linear nature of their ‘establishment chain’ (Johanson & Vahlne, 2009) has been questioned, especially in the light of the changing world of interconnectedness and the active participation of more countries in international trade. Concepts presented in the revised Uppsala model such as trust-building and knowledge creation (Johanson & Vahlne, 2009) as well as open-endedness (Vahlne & Johanson, 2017) are relevant to government export support and therefore present an ideal forum for commenting on public export support services. Moreover, many governments have a diplomatic presence in a large number of countries, often those with existing or potential markets for firms from their countries, especially with regard to developing the variety of goods and markets (Visser, 2019). The idea that firms can access internationalization knowledge before initiating the process has been expressed by Forsgren (2002), who discussed imitative learning and other shortcuts to accessing the knowledge of more experienced firms about international activities and by Petersen, Pedersen & Lyles (2008), who considered this possible but warned that a firm’s absorptive capacity as well as the possibility of harmful overconfidence should be considered. Considering their potential negative impact on the success of internationalization, these could be considered niche areas, in which export agencies can play an informative role by expanding the specific knowledge base and setting realistic expectations for success in a foreign market. Another line of discussion was initiated by Autio, Sapienza & Almeida (2000), who linked the model to the speed of internationalization. In their interpretation, experiential knowledge increases the speed of foreign commitment. Furthermore, Welch & Paavilainen-Mäntymäki (2014) pointed out the absence of certain features from research on the process of internationalization. They suggested a focus on how issues develop and grow. Event analysis also provides research on government support with ample material to use in applying theories of firm internationalization.

However, the updates to the Uppsala model still present no explicit explanation of the potential role of governments in supporting internationalization. Literature on export assistance shows that it is useful both as a provider of market information (Catanzaro, Messeghem & Sammut, 2015; Singer & Czinkota, 1994) and a facilitator of experiential
knowledge (Gencturk & Kotabe, 2001; Haddoud, Jones & Newbery, 2017; Spence, 2003). Several authors (e.g., Francis & Collins-Dodd, 2004; Freixanet, 2012; Samiee & Walters, 1991; Welch & Wiedersheim-Paul, 1979) have tried to match the phases of export development with the services which firms require or benefit from most. The applicability of various export support services are presented in Table 1, with the comparison of Uppsala model stages (Johanson & Vahlne, 1977) in the left-hand column. The studies point to important similarities, for example, to the need to gather information at the earliest stages of importing, increase commitment and strengthen capacities in the middle stages, and provide more sophisticated services during later stages of internationalization. However, researchers seem to be divided on the usefulness of financial incentives, especially to exporters in the early stages of internationalization.

**Table 1.** Studies that have attempted to link the applicability of export support services to phases in the development of exporting.

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<td>No exports</td>
<td>Phase 1</td>
<td>Pre-export activity / Strengthening the resource base of the firm (skills, capacities) but not financial incentives</td>
<td>Pre-exporters / Market opportunity seminars, contacts/leads</td>
<td>Starting/passive exporter / Information (on markets, programs), assistance to start exporting, financial aid</td>
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<tr>
<td>Sporadic exports</td>
<td>Phase 2</td>
<td>Initial exporting phase / Involvement of outside experts, development of the ability and commitment to exporting</td>
<td>Sporadic exporters / Information source references, consulting</td>
<td>Sporadic exporters / Similar to pre-exporters with more focus on boosting the ability</td>
<td>Regular exporter with little structure / Information, consultancy, export groups, financial aid</td>
</tr>
<tr>
<td>Exports via representatives</td>
<td>Phase 3</td>
<td>Export expansion / External economic incentives, outside experts to reduce the risk and uncertainty</td>
<td>Regular exporters / Names of contacts, market feasibility studies, export management seminars</td>
<td>Active exporters / Local trade officers, market studies, trade shows, export training, market opportunity</td>
<td>Regular exporter with complete structure / Information, consultancy</td>
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<tr>
<td>Foreign subsidiary</td>
<td>Phase 4</td>
<td>Majority exporters / Overseas trade officers, trade shows</td>
<td>Consolidated exporter with permanent sales established abroad / Consultancy, investment support</td>
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<tr>
<td>Foreign manufacturing</td>
<td>Phase 5</td>
<td>General industrial policies in the home country</td>
<td>Industrial multinational / Consultancy, investment support</td>
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Relatedly, the term ‘network-based view’ (NBV) is sometimes referred to when considering loosely arrayed observations on the use by firms of networks in developing competitive advantage. Although government agencies realize the importance of sales networks for fostering and supporting the exports, their development is generally an implicit part of export promotion. Government support, e.g. trade fair participation or organizing contact visits, can provide opportunities to develop networks. However, the contacts are merely precursors to networks and an active role in turning an opportunity into a valuable sales relationship needs to be taken by the firm. Beyond financial or organizational support, the label of having received government support can carry reputational value that verifies that the firm is taken seriously in its home country, which can be a reason on its own for the firm to seek out government services that facilitate exports. Although it is intuitively a simple, it is difficult to pinpoint the beginnings of the NBV of firm internationalization. Its emergence can be connected to process- and network-related work in strategic management, such as Dunning’s OLI framework updates on growing interdependencies and the ‘advance of capitalism’ (1995) and Welch & Welch (1996), which suggests that network development is both an outcome and an antecedent of internationalization. Another factor is the stream of literature related to ‘born globals’ (BG) (Knight & Cavusgil, 1996; Madsen & Servais, 1997; Oviatt & McDougall, 1994), which allegedly skipped the stages of internationalization suggested by the Uppsala model by relying on their international networks (Sharma & Blomstermo, 2003). Unencumbered by legacy systems (Knight & Liesch, 2016), these newly founded and internationalizing firms, make use of their capabilities in an conventional manner. In the few related studies of government export support and BGs, assistance was not
found to be useful (e.g. Kaur & Sandhu, 2014; Machado & Bischoff, 2018) despite the general implicit assumption of the utility of public support in BG literature (e.g. Khan & Lew, 2018; Moen, 2002). The lack of empirical evidence could be due to important idiosyncrasies of BGs. For example, BGs often operate in niche markets (Hennart, 2014; Paul & Rosado-Serrano, 2019), they use low cost means of communication and business delivery models (Hennart, 2014) and aim for non-performance market entry goals, such as first mover status (Crick, 2009). This is also reflected in comments by Bell, McNaughton, Young & Crick (2003) that standard export knowledge is not useful to niche market BGs, which can obtain their market information more effectively than any export agency could, and by Crick (2009), who commented that policymakers need to offer tailored support packages.

Some authors suggest that networks have a greater role in emerging economies (Khanna & Palepu, 2005; Yiu, Lau & Bruton, 2007) such as China (Child & Rodrigues, 2005) or Russia (Rehn & Taalas, 2004). However, others suggest that the impact of networks in developed countries is just as important but manifested differently (such as by forming strategic alliances for resource sharing and common exploration activities as suggested by Chang & Hong, 2000; Hitt, Lee & Yucel, 2002). Firm boundaries are an important element in discussions of the NBV because they help define where the network starts and ends. Firm boundaries are related to knowledge firms can employ in their activities. Kaplan, Schenkel, von Krogh & Weber (2001) discussed that whereas some resources and knowledge can reside both inside and outside the firm, making use of the outside knowledge would need to cross the ‘double boundaries’ of integration, or bringing knowledge into a firm, and absorption, or making it part of tacit knowledge. This description seems to appropriately describe the effect on firms of government assistance. After support is granted, existing external knowledge and resources become jointly held by the government agency and the firm. However, to truly benefit the business in the longer term, they must be integrated and absorbed in the firm. Yang, Lin & Lin (2010) added that firms’ boundary choices in network relations involve tension between complementing internal resources and managing risks in external relations. They further argued that in seeking and accessing external alliances and acquisitions, firms first consider their own resource endowments and the external sources accessible through their networks. As with the Uppsala model, one could presume where export support by government agencies will fit within the model (often, the function of export support is to provide missing resources and share risks), although there are no theoretical developments that establish its relevance and position within the holistic view.
The Institution Based View (IBV)

Nelson & Sampat (2001) defined institutions as ‘social technologies’ that have become institutionalized or standardized. Internationalization of firms and provision of export support takes place in an environmental context shaped by institutions. Export assistance services may or may not be considered a part of institutions, depending on the definition. On the other hand, the standard conditions for government export support form a part of the institutional context, for example through transparent allocation, equality of access to the services of various firms, and the quality of the counseling service provided. There are significant differences in the design and quality of export support services between countries. However, quantification of the differences is tricky due to political sensitivities, differing cultural contexts, and the heterogeneous goals of support.

There are a number of institutional aspects studied in the IB literature, such as the uncertainty caused to economic actors by institutions, incentives shaped by institutions, efficiency of markets, and rules of competition (Meyer & Peng, 2016). Peng, Sun, Pinkham & Chen (2009) made a compelling case for the existence of a difference between developed economies and emerging economies. In the former, firm performance variation is better explained by firm-specific effects (supporting the RBV), whereas in the latter, effects by country are salient proxies for institutional differences. This observation laid the groundwork for developing the institution-based view (IBV) of international business strategy, introduced a few years earlier by Peng (2002) as a result of his research on a number of Asian countries. In western economies, the IBV has been found to be useful in analyzing and explaining the boundary conditions of industrial organization economics and Porter's Five Forces (Napshin & Marchisio, 2017). As Buckley et al. (2018) pointed out, it is also important to distinguish between institutional factors (slow to change) and policy changes (quick to change), which they argued are often conflated by researchers, and also in their own earlier work. I agree with this remark but must note that similar to the lack of detail in traditional IBV, this distinction requires a much more thorough examination in the prior literature. In this dichotomy, government export assistance arguably falls into the category of policy changes. However, to be applied efficiently, it requires a relatively stable and predictable institutional background.

Gao, Murray, Kotabe & Lu (2010, p. 381) framed the focus of the IBV as “the interplay between institutions and organizations and considers strategic choices as the outcomes of such interplay.” Lu, Zhou, Bruton & Li (2010) discussed the usefulness of ‘institutional capital’ and proxy it empirically with reception of assistance for exports or
favorable treatment from government. Gaur, Kumar & Singh (2014) integrated concepts from the RBV and IBV, introducing the notion of ‘institutional resources.’ In their research design, they likened the notion to affiliation with a business group, which is a form of network-related resources. Peng, Sun, Pinkham & Chen (2009) observed that when institutions are discussed by economists, they focus on formal laws, rules, and regulations, whereas sociologists pay more attention to informal cultures, norms, and values (cf. informal relationships, relevant to NBV). North (1990) discussed their interplay as informal constraints arise when formal constraints fail. In export performance studies, the distinction is not as important, although it is more in keeping with the tradition of accounting for formal institutions in economics. As exporting and internationalization are long-term processes, the key institutional characteristics affecting export outcomes are stability and predictability.

When institutions are discussed in academic literature, they are often portrayed as possessing negative performance-inhibiting traits (such as regulatory burden and lack of investor protection). This is especially true in studies of emerging economies. This view appears warranted as empirical studies confirm the role of institutions in export activities (e.g. Gao, Murray, Kotabe & Lu, 2010). Andersen (1993) posited that export decisions are initiated by both ‘push’ (escape from the domestic market) and ‘pull’ (opportunities in the foreign markets) factors. The ‘push’ factors are especially important for firms with weak home-country institutions (Krammer, Strange & Lashitew, 2018; Luo, Xue & Han, 2010), although Luo & Tung (2007) argued that MNEs from emerging markets invest abroad mainly due to ‘pull’ factors. However, predictable institutions, which offer quality export promotion services, can also be the source of positive performance-enhancing externalities. This has not been a traditional focus in management studies, but rather in development economics or in work by international organizations (some overlapping discussion can be found in Hoskisson, Eden, Lau, & Wright, 2000).

Inclusion of institutions and of external factors in general in the export performance literature has been slow. Among the review papers on export performance Bilkey (1978) argued that exporting is a developmental process, to which Aaby & Slater (1989) added that commitment to export on the part of management and firm competences are necessary preconditions. External factors were added in the discussion by Zou & Stan (1998) and Sousa, Martinez-López & Coelho’s (2008) in reviews. Sousa, Martínez-López & Coelho (2008) categorized export assistance activities as domestic market characteristics although their list included a mix of positive and negative features such as the ‘hostility’ level of a
business environment (and a mix of institutional factors and policy changes, as distinguished by Buckley, et al., 2018).

The first comprehensive review of export behavior and performance by Bilkey (1978) made an explicit note of ‘external change-agents’ (“chambers of commerce, industrial associations, banks, government agencies and other firms”). Later reviews of export performance shied away from this approach by indicating for example, that “our review will focus on aspects closely related to managerially controllable variables—firm characteristics, firm competencies, and firm strategy” (Aaby & Slater, 1989, p. 8). This shift may have been caused by trends in 1980s management theories, which leaned towards management-guided internal activities such as formulation of the competitive strategy of the firm (e.g., Porter, 1985) and promotion of characteristics common to excellent companies (Peters & Waterman, 1982). Bilkey (1978) also emphasized that export stimulation programs should be designed for specific stages of internal development and exporting experience. This rather intuitive recommendation has been largely overlooked in the empirical literature. This is a gap I intended to fill with dissertation essay #1, which studies the effects of the order of various types of government support. The findings and usefulness of the study were validated via interviews with policymakers who had a good understanding of the bundle of complementing services needed throughout the exporting lifecycle (even if firms are not particularly aware of them).

The IBV was finally acknowledged in a review by Chen, Sousa & He (2016), who pointed it out as an emerging trend for which there were no mention in prior reviews to mentions in 12 out of 124 subsequent studies. This confirms Zou & Stan’s (1998) argument that the lack of work on external factors could be due to the posing of different research questions. The IBV has also been used in combination with by RBV, e.g. by Krammer, Strange & Lashitew (2018), who combined elements from IBV and RBV to explain the export performance of BRIC firms. This idea is supported by Meyer, Estrin, Bhaumik & Peng’s (2009), who acknowledge that it is often difficult to separate the effects of resources from those of institutions.

Like the few cited review papers and empirical descriptions of government support or exporting activity, I struggle with fitting the research context into a single well-developed theoretical framework. Hence, I posit that including government support in major firm internationalization models (either from the network, resource, or institutional perspective) will provide them with an added degree of practicability.
2.2 Heterogeneity in Outcomes

The studies of export assistance programs often start with the general research question of whether the support was successful. The answers are far from generalizable. Empirical studies have rarely focused on more than one country. Literature reviews on government export support in various countries, such as those by Freixanet (2012) and Durmusoglu, Apfelthaler, Nayir, Alvarez & Mughan (2012), have concluded that the results are mixed. Non-significant financial performance results were found, for example, in the United States, but also in Canada and Chile. Statistical impacts are affected by many factors, including whether the researcher had studied the propensity to export (i.e. the likelihood that non-exporters will engage in exporting) or export intensity (obtained i.e. by calculating the proportion of total sales accounted for by exports, in other words by studying the progress made by experienced exporters towards more pronounced exporting). The dependent variables in empirical studies also differ, and as Seringhaus (1986) pointed out, impacts should not only be measured in export sales, but also in faster entry, geographical outreach, and other relevant dimensions. To my knowledge, no meta-analysis has been conducted that discusses the development context of the respective countries allocating the government assistance or the boundary conditions of the support programs. Admittedly, this would be challenging as the studies have been conducted with samples of convenience, often from the countries where the authors originated, and thus susceptible to spuriousness.

The range of export support services offered by government agencies and whether they are designed to be generous or conservative in their resource allocation, is subject to conscious strategies and/or evolutionary developments in the national economy and the support agency. In particular, established routines and instructions that have developed over time facilitate decision-making (Knudsen, 2002). However, these may result in inertia (Hannan, Pólos & Carroll, 2004). The inference is that the support mechanisms cannot be analyzed abstractly. Research should instead take into account actual programs in their context and with their specific conditions for participation. This also complicates their comparison across various types of export assistance (some attempts to include more than one type of support instrument are found in Alvarez, 2004 and Monreal-Pérez & Geldres-Weiss, 2019) and across countries. Some authors have been looking for patterns indicating where which countries’ insights are applicable, such as Luostarinen (1994) who suggested that his Finnish sample could have the highest relevance in i) other small and open economies, ii) economies in transition (then, most notably in Central and Eastern Europe) and
iii) developing countries. However, there is no established typology of economies that can be used to assess the similarity of conditions faced by export support agencies across the world.

Disparity in empirical results is detrimental to development of a single standard theory but offers ample opportunity to suggest gradual theoretical contribution to the field. Mixed results require strong theoretical models that explain the resulting export performance after receiving government support and explore the relevant moderators and other contingency factors. The following section focuses on the contributions of this dissertation to theories related to government export support.
As mentioned in section 1, my dissertation makes three main contributions to the theoretical framework of government export support: a conceptualization and empirical presentation of the implications of choosing the appropriate time dimensions, an exploration of mediators and motivating moderators, and a theorization regarding the accuracy of decisions and the implications thereof. A combination of items with various qualitative properties (such as time, boundary conditions and the choice of viewpoint) can be difficult to summarize into a holistic model. Inspiration came from the disparate field of quantum cosmology. Hertog (2023) realized that the properties of developing the traditional physics models were insufficient and proposed a connected triptych framework that includes Observership / questions, Origin / boundary conditions and Evolution / dynamics. An illustration of his framework is presented in Figure 5. This decomposition of research focus led to new conceptual predictions in his field. My dissertation has many similarities to the Hertog framework. Essay #1 contributes to the literature by posing multiple research questions from different viewpoints and discusses their associated biases, whereas the traditional way was to explore impacts from a single point of view. Further, essay #3 emphasizes that the traditional research questions posed in government export support studies should be reformulated in light of the accounting for decision errors. Essays #2 and #3 explicitly discuss the impact of evolutionary mechanisms with the help of evolutionary models and the terminology of evolutionary economics. Either by empirical demonstration or conceptual discussion, all three essays also attempt to establish and link new previously unresearched boundary conditions to the empirical phenomenon of government export support.
Figure 5. The triptych framework of theory development.

The positioning of the three essays of the dissertation is atypical because their development did not follow a master plan, i.e. by looking at an issue on the micro, meso and macro level or exploring a dataset with various methods in order to answer various research questions. Instead, the essays grew organically out of each other and the work on theory; a focus on issues that are under-discussed or nonexistent in the extant IB and management literature is their main common denominator. Figure 4 in section 1.4 displays the overlaps between the essays. The empirical essays #1 and #2 can also be linked to the conceptual essay #3, which picks up on the non-empirical questions that have, in my opinion, received insufficient attention. Figure 6 links the aspects discussed in the essays to the theories discussed in section 2, as well as to other theoretical research disciplines (evolutionary economics and development economics). The three main contributions of my dissertation are developed in the next subsections.
3.1 The Time and Evolutionary Perspective on Government Support

This area of management studies is concerned with empirical phenomena, which are by default placed within time. However, time itself is largely ignored in the literature, and needs to be considered and disaggregated in much greater detail than has previously been done. Furthermore, Ancona & Tushman (2001) advocated temporal leadership or in other words, managing across various temporal dimensions with a vision that integrates and focuses temporal decisions. Thus, time is a fundamental element of management studies.

Recently, there has been an increase in theorizing regarding time (e.g. special issue calls in *Journal of World Business* in 2020 and *Academy of Management Review* in 2022). However, despite this interest, there remain understudied aspects of time in management research. One of the crucial issues revolving around time is that whereas time is implicitly present in most empirical studies, there is often little or no justification for choosing a particular timeframe. This concerns both the data collection time window as well as the justification for the selected ‘time dimensions’ (Jones & Coviello, 2005). The list of primary dimensions of time identified by Jones & Coviello’s (2005) – chronological time, reference time, time sequence, time periods, time duration, time intensity, cyclical dimension, gap time, and rate of internationalization – was not claimed to be exhaustive. It does, however, illustrate that there are a variety of ways to define time empirically and pose research questions. In essay #1, I demonstrate that the choice of framing in this crucial aspect can significantly affect interpretation of the data. As is common in management studies, the significance of this contention extends well beyond the focus of my study, i.e. government export support. The framework I develop is useful for conducting empirical studies of other events or interventions in IB where the quantitative data allow in-depth comparison of results in various time dimensions.
My path leading to discussion of the time nuances was incremental. I first tackled the standard question of government support efficacy by estimating the size of the effect of a single time dimension. I studied several methodological approaches used by other researchers for similar research questions and originally conducted various statistical analyses to check for robustness. However, I realized that written explanations of my findings revealed various nuances in how the results could be interpreted. At the time my paper was submitted to journals, I noticed a call by the *Journal of World Business* for papers on the special issue ‘Time Matters: Rethinking the Role of Time in International Business Research,’ which also referenced the discussion on time dimensions by Jones & Coviello (2005). Their conceptualization of the packaging of time suited my empirical analysis and data. Inspired by the result of the description of time in the literature, I rephrased my hypotheses and tested them for the updated framing. After further development of my article following the journal submission and comments I had received at a virtual FIGS-IB workshop, I discovered another distinct framework on time by Hurmerinta, Paavilainen-Mäntymäki & Hassett (2016). Reflecting on our results, I realized that both articles still had a dimension missing, and hence I chose to extend their frameworks in my article. Addressing Jones & Coviello’s (2005) primary dimensions of time that may be relevant in studying internationalization, i.e. chronological time, reference time, time sequence, time periods, time duration, time intensity, cyclical dimension, gap time, and rate of internationalization (of which I used three out of nine due to data and context applicability), I proposed adding a missing dimension ‘effect length time.’ To the conception of time on horizontal and vertical axes in Hurmerinta, et al. (2016), we added a time-invariant z-axis to Jones & Coviello’s (2005) time sequence dimension. A visualization of the resulting conceptual framework of time is presented in Figure 7, which appears later in the Kappa.

To find theoretical framing ideas for my dissertation, I ventured to take up a different research tradition, evolutionary economics. Although evolutionary thinking is not commonly used in IB and in particular when studying government support, it is related to the time perspective and to empirical research on government support via assumptions. Similar to my multiple viewpoint take on time discussed in the previous paragraph, the evolutionary perspective treats time on a bigger scale and as an evolving process. This feature is generally missing in effect size studies that compare situations from time A to time B to determine the impact of an intervention, even if employing a number of control variables. On the other hand, the evolutionary perspective assumes imperfection in cause-and-effect relationships as its cycles of variation-selection-retention implicitly suggest various developmental routes. In
practice, this means that despite the best intentions, foresight, and analytical capacity on the part of the support agency, chance plays a major role, and hence it is more accurate to discuss the probability rather than the ex-ante accuracy of decisions.

The evolutionary view is developed in essays #2 and #3. Inspired by theories in biology, this view has been applied in the innovation and Research Policy literatures (e.g. Edquist & Hommen, 1999), but not in IB. The innovation-mediated model of export in essay #2 offers an opportunity to discuss its applicability in the export context. The sample of firms in the essay is interesting not only because it focuses on innovative firms but also because, despite their innovation, they have been unable to focus on export markets, as demonstrated by a mean export intensity of 10.2%. Hence evolutionary economics, with its underpinnings in the variation-selection-retention cycle with losses in each phase, provides an interpretation of the low figure. I take this approach a step further, arguing that there are variation-selection cycles in both the ‘allocation of government support phase’ and the ‘innovation and export phase.’ In the first phase of the mediated relationship in the essay’s model – government support/innovation – it is naïve for a government to assume perfect efficacy in allocation and variations between firms arise when support is extended to a larger number of firms. The selection process happens within the firm because some firms are unable to turn government R&D support into innovation. The second round of variation-selection takes place in innovation/export, where innovation generates product variation that may succeed in export markets. To illustrate, success is more likely when a firm has several patented products than when it has only one. Export markets make the final selection, which is the ultimate evolutionary test of the relationship between government support to R&D and development of innovations and consequently exports.

In essay #3, I discuss evolution from a different angle. I argue that evolutionary aspects affect not only firms but also the agencies that allocate government support. Therefore, essay #3 is not a continuation of essay #2, but rather a further discussion of some of its literature and concepts. Nevertheless, this extension also permits me to discuss the manner in which the level of economic development in the home country may affect government export support services. Hoskisson, Eden, Lau & Wright (2000) posited that one of the most useful frameworks for examining emerging economies is the institutional perspective. Here the authors refer to the political, organizational, cultural, and environmental differences faced by firms from advanced economies when operating in very heterogeneous developing countries. Cantwell, Dunning & Lundan (2010) discussed the institutional co-evolution of the institutional environment and the firm, which also occurs between the
government allocating the export support and the firm receiving it. Later, Lundan & Cantwell (2020) argued that there are specific knowledge-intensive intangibles that redefine value creation and capture, and suggest that in mutually accepted cooperation, corporations also address societally important goals. Peng, Li, van Essen & Peng (2020) identified the orientation strategies best suited for developed economies (an entrepreneurial orientation) and emerging economies (a market orientation). As opposed to an entrepreneurial orientation, a market orientation requires more market-specific as well as technical knowledge, which is arguably more challenging for inexperienced firms such as those from emerging economies. Teece (2014) has summarized his notion of the ideal state of business knowledge as consisting of ‘dynamic capabilities’ which “are about doing the right things, at the right time, based on new product (and process) development, unique managerial orchestration processes, a strong and change-oriented organizational culture, and a prescient assessment of the business environment and technological opportunities” (p. 331). Building on Teece (2014), Gerhart and Feng (2021) argue that firms from less developed economies should not start from focusing on ‘dynamic capabilities’ but need first to master the existing technologies and practices (‘ordinary capabilities’) to achieve ‘competitive parity’ with firms from developed economies. Although Luo & Tung (2007) argued that MNEs from emerging markets use a springboard strategy (e.g. seeking assets or knowledge, bypassing trade barriers, and alleviating domestic constraints) to overcome the latecomer disadvantage, they later added that many firms from emerging markets, especially smaller firms that lack the financial resources, scale and scope to operate in a more evolutionary fashion, do not operate in springboard fashion (Luo & Tung, 2018). The quality and the ability of home institutions can make a significant difference as offering relevant and high-quality business development services can assist in bridging the capabilities gap.

However, the relative immaturity of business development in emerging economies compared with advanced economies means that developing economies have a greater need for quality export support services. This unmet need also suggests that policymakers have more low hanging fruit to pick, i.e. quality projects that cannot secure financing from an underdeveloped financial market or which can create returns from simpler activities (those previously not carried out by firms in emerging countries, yet well established in the firms of developed countries). The fact that many such actions also serve to develop the internal practices of companies is a further reason that it may be wise for export promotion agencies in emerging economies to err on the side of inclusion (leakage) in the hope of wider development. Doing more for a larger pool of recipients also helps establish effective routines
within an agency. Eisenhardt & Martin (2000) point out that repeated practice is one of most
efficient contributors to building dynamic capabilities.

Conversely, in advanced economies, the easier and more obvious business
development opportunities may be somewhat limited. Program budgets are often larger and
more stable across years, making it difficult for policymakers to find worthy projects. In these
circumstances, generous programs and opting for leakage could create false incentives. In the
more inequitable cases, competition based on merit and the quality of the application is
replaced by the political marketplace (Oliver & Holzinger, 2008; who call it just another
instrument for creating firm-specific advantages that are costly to imitate). Paradoxically, the
presumed approach of greater risk-aversion in the allocation of support in developed
economies does not necessarily lead to a higher level of scrutiny because a larger budget may
be accompanied by administrative pressure or political will to spend the funds regardless of
merit and result in the application of less stringent criteria. In these situations, there may be a
lack of quality projects available and so-called safe firms, which are supported, may not
deliver international sales growth. The firms targeted with export promotion are likely to
have been previously targeted many times. Except for new entrants, the potential for
discovering an unaware and inexperienced highflier is lower than in emerging economies.
Hence the low risk profile called for by policymakers and the more informed electorate of
developed countries, may result in these support mechanisms generating low returns.

3.2 Pathways Towards Export Intensity

In addition to the environment, which is discussed in section 2, and the dynamic effects on
the internationalization of firms examined in section 3.1, there are also static influences
caused by intra-firm organizational characteristics. Both innovation and export are complex
empirical phenomena with a number of important factors affecting outcomes in a variety of
ways. I identified only two empirical studies that test the efficacy of government R&D
support directly in relation to export performance: Görg, Henry & Strobl (2008) and Guo,
Guo & Jiang (2016). In complex multi-variable relationships, one intuitive way to map the
interrelations is by using a mediated main relationship of \textit{antecedent} \rightarrow \textit{process outcome} \rightarrow
\textit{performance outcome}, and moderators of these mediations for contextual environment
variables (see examples in Hitt, Tihanyi, Miller & Connelly, 2006; Raisch & Birkinshaw,
2008). The resulting model is called a moderated mediation relationship. In essay #2, I drew a
moderated mediation relationship of \textit{government R&D support} \rightarrow \textit{innovativeness} \rightarrow \textit{export
intensity} with variables of intrinsic and extrinsic motivation as moderators. In so doing, I
pursue the proposition by Grant (1996) that the most important aspect of knowledge within a firm is to understanding how it should be applied. My constructs are therefore grounded in the KBV of the firm, with innovativeness measuring the knowledge stock formed in the firm and the moderators exploring the coordination mechanisms by which the firms integrate the specialist knowledge of the employees. Note that in the empirical context, I use the term innovativeness instead of innovation because I operationalize innovativeness as the number of applied patents per 100 employees, thereby attempting to mitigate the effect of firm size on the measurement of intra-firm innovation. These hypotheses are based on literature streams of innovation, research policy, and behavioral theories on motivation.

The Importance of Innovation in Channeling R&D Support toward Export Intensity

The relationship between government R&D support and innovation is one of the main research questions in the research policy literature (e.g., Garcia & Mohnen, 2010; Mansfield, 1984), and public support as a policy instrument for innovation predates market-based incentives (Borrás & Edquist, 2013). Advocates of Systems of Innovation (SI) theory have criticized the simplified thinking according to which market failures lead to a need for public R&D support, which in turn leads to innovation and satisfaction of market needs (Edquist & Hommen, 1999). However, Edquist & Hommen (1999) also admitted that this view has gained considerable legitimacy due to its consistency with ‘neo-classical’ economic theories.

My dissertation does not discuss innovation per se but the mechanisms behind the allocation of government support. However, innovation is not an incidental mediator for internationalization as it increases the competitiveness of firms in foreign markets and deliberate creation of variation, i.e. path-dependent learning (Leiblein & Madsen, 2009), plays an evolutionary role for both firms and export support agencies. When advocating the knowledge-based view (KBV) of the firm, Grant (1996) and Spender (1996) argued that knowledge is a process of coordinating the leveraging of resources. In my research, I seek to establish relationships between the external resources included in the process and the outcomes of internationalization.

As it has been found to be neither unidirectional, i.e. from innovation to exports (e.g. Cassiman & Golovko, 2011) or from exports to innovation (Bustos, 2011), nor bidirectional (e.g., Golovko & Valentini, 2011; Monreal-Perez, Aragon-Sanchez & Sanchez-Marin, 2012), the general relationship between innovation and exports is not straightforward. Although endogeneity is a concern, many authors, including me, have treated it by lagging the variables of interest. An ideal model would encompass longitudinal data from many years or perhaps
decades, thereby providing ample modeling opportunities. However, such datasets with firm-level data are rare, and in many countries the development context changes significantly over time. As an example, in my research setting an extended time series for innovation and exports for China would include numerous caveats; seismic shifts in economic environment would threaten the reliability of any results. In any event, technology and knowledge are considered to be crucial for successful exports (e.g. Chetty & Hamilton, 1993; Geldres-Weiss, Uribe-Borquez, Coudounaris & Monreal-Perez, 2016). Export activities are also positively impacted by higher product quality (Baldwin & Harrigan, 2007).

In the context of my dissertation, it is noteworthy that whereas the dataset was labeled ‘the most innovative firms in China,’ the firms face significant challenges in exporting (the mean export intensity is a mere 10.2%). This implies that in this research setting, the sequence of firm activities and the interrelationship between innovation and exports is likely to be innovativeness → export intensity, and not the opposite. The research setting may still present several country-specific explanations for this figure, such as large and growing domestic market demand. However, it is also likely that export markets would be more lucrative for innovative Chinese firms and present additional growth opportunities with higher margins, provided that the firms were prepared for the probable fiercer competition.

**The Importance of Organizational Motivators**

Behavioral theories on motivation differentiate between intrinsic and extrinsic (financial) incentives but whereas the difference in their definition is generally clear, the impact of each type of incentive is the subject of lengthy debate. Whereas it is no surprise to anyone that both intrinsic and extrinsic incentives affect work motivation positively (Gerhart & Fang, 2015; Kominis & Emmanuel, 2007), the more interesting contributions address the research questions of where and when either is more effective. Although behavioral studies of motivators are common in psychology and organizational studies, there is considerably less prior research on motivators that affect innovation and export outcomes.

*Intrinsic incentives.* Intrinsic incentives have primarily been linked to creativity (Amabile, 1997), which is an important precursor of innovativeness. Moreover, cognitive evaluation theory suggests that intrinsic motivation requires feelings of competence and autonomy (Gagné & Deci, 2005). Fischer, Malycha & Schafmann (2019) demonstrated that positive outcomes of creativity and innovation were nurtured by higher intrinsic motivators, but the relationship was further augmented by the perceived probability of receiving relational rewards (e.g. praise, recognition, or feedback on performance). Devloo, Anseel, de
Beuckelaer & Salanova (2015) discussed innovative workplace behavior (which extends beyond intrinsicality) as being comprised of three components: idea generation, promotion, and implementation. There is ample evidence that in work contexts, innovative behavior includes not only creativity but also sociopolitical activities that transform ideas into innovations (Yuan & Woodman, 2010).

Studies of intrinsic incentives and cognitive evaluation theory are mostly experimental and conducted on the individual level (Gagné & Deci, 2005). An added complication is the difficulty of operationalizing the variables that measure intrinsic motivation beyond individual employee surveys. Submission of suggestions to employers is an easily observable intermediate output of intrinsic motivation. This is an important source of innovation, especially in service-oriented firms and for employees in positions closer to the final customer (Andries & Czarnitzki, 2014; Schepers, Nijssen & van der Heijden, 2016). The variable ‘employee suggestions per number of employees,’ which I use in essay #2, also addresses the concerns of Fairbank & Williams (2001) that merely having the opportunity to submit suggestions is insufficient. My variable measures the actual activity of providing suggestions. This operationalization also links innovativeness to intra-organizational social processes and perceived belongingness to the firm.

Extrinsic incentives. The old saying that money makes the world go round is frequently quoted. In the context of business, it certainly does, and it is moot to argue the contrary. The relevant question is what kind of extrinsic incentives are most effective and in which situations. One of the recurring questions posed in the innovation literature is whether extrinsic incentives crowd out intrinsic incentives (e.g. Frey & Oberholzer-Gee, 1997; Ryan & Deci, 2000). On an individual level, this has important implications for the innovation and creativity literature as novel insights require thinking outside of the box. Despite the many studies that suggest it does, there is also research that questions the universality of this finding (Gerhart & Fang, 2015) or even suggest that the opposite is true (e.g. Burroughs, Dahl, Moreau, Chattopadhyay & Gorn, 2011; Toubia, 2006). Contextual factors, such as the nature of the task and the design of the incentives, also matter. For example, if the search for innovation is directional and consists of subtasks, then market-based incentives can work (Nickerson & Zenger, 2004) and financial incentives can serve to motivate employees to work more or to attract talent (Zenger & Lazzarini, 2004). Deci, Koestner & Ryan (1999) discuss general situations in which extrinsic incentives do not damage motivation, such as when rewards are independent of the task engagement (e.g. salary) or when rewards are unexpected. Since personal motivation is an issue in within-subject research, and difficult to
observe on the firm level or in IB contexts, I do not address it in my essays. Instead, I observe
the organizational context of intrinsic and extrinsic incentives separately.

The type of incentives used are the other relevant matter concerning extrinsic
incentives. In essay #2, I make use of data on the nature of bonus systems used in innovative
firms and in particular whether bonus payments are preferred over equity options and
promotion incentives. Bonus payments differ from equity option incentives. The two
financial incentives can be clearly linked to performance, yet they differ in payout frequency
and horizon. Bonus payments are distributed frequently as they relate to short-term
performance appraisals. Importantly to bonus payments, extrinsic incentives have been found
to be effective when the output can be divided into smaller tasks (Nickerson & Zenger,
2004), which is often the criterion for allocating bonus payments in incentive schemes.
Although equity options can be allocated according to short-term or long-term performance,
their expected payout will be in the more distant future and may be subject to other
conditions, such as employee retention in the firm (Damodaran, 2005). One could argue that
for employees, the main perk is an additional financial incentive. How they are labelled is not
particularly important but due to ‘mental accounting,’ people treat means stemming from
various sources as though there were separate (Thaler, 1999). This in turn means that their
behavioral implications are different. From the employee perspective, the extent of payout
from stock options is less certain. Bonuses must be regular in order to remain supportive
because one-off incentives lose their effect after a short time. Loss aversion makes most
people avoid risks and prefer sure payouts (Tversky & Kahneman, 1992). Moreover, the
preferred incentive scheme is often dependent on firm characteristics. For example, offering
equity options is the preferred mode of incentive in cash-constrained firms (Core & Guay,
2001). Chang, Low, Fu, & Zhang (2015) list the circumstances when the effect of an
employee stock option on innovation is stronger, such as longer expiration periods and
smaller firm size, which relate to fewer opportunities for free-riding. Azam (2020) notes that
incentives that are paid out in the more distant future support innovation because they tolerate
initial failures.

In essay #2, I examine the impact of the use of bonus schemes on innovation and
export by attempting to determine the more immediate effects of extrinsic incentives. I
hypothesize the effect in both stages of mediated relationships and discuss the relevant
literature, looking at why a positive impact should appear in particular in a mediated
relationship within my research context. As the objects of my study are firms, it is important
to note that the variables for intrinsic and extrinsic motivation are both inputs for the firm and
its innovation and sales activities. This observation point differs from that of employees, because the suggestions provided can be viewed as the output of motivation. However, measuring and generalizing the employee motivation level to the firm level is complicated, if not impossible. Finally, individual vs. firm-level considerations also affect the choice of mediating variable (I employ patents per employees as the closest variable to output count of innovation). This ensures that the moderating relationships are input → output relationships and not a haphazard combination of generally convenient and available variables.

3.3 The Accuracy of Targeting and Decision-making in the Allocation of Support

Essay #3 addresses the fundamental question of applicability regarding the examination of government support: Are we asking the right questions? Empirical studies of independent-dependent variable relationships, where the authors investigate whether government support was beneficial (de facto: true positive studies), produce an actionable insight in a particular context but in doing so fail to address perhaps the most pertinent question regarding government support: Is the support program targeting the appropriate scope of firms? The choice between generosity and stinginess in the design of a support program substantially affects its impact.

The decision to allocate export assistance is usually a binary choice made on the basis of the uncertain future prospects of the applicant firm. It seems that statistical testing can rather easily distinguish between true positives and false positives but in hindsight, making the correct decision only appears easy. There is the misconception that ex post studies could reveal the accuracy of the decisions made by the export support agency and thereby inform future decisions. In reality, it makes more sense to discuss the probability of success by a particular firm as even the best laid plans often fail in actual markets and seemingly ill-conceived plans may turn out to be successful. Making ex post mistakes in ex ante support decisions is a reality that is not widely recognized by the general public when it asks for explanations of why supported firms failed. On the other hand, firms that applied for support are likely to include unfairly rejected applicants and unexpected high achievers that received low scores in ex ante evaluation or whose rejection was due to a lack of available funding or other organizational issues. Commonly, these firms do not appear in the empirical samples used in studying government export support. This tradeoff, expressed in terms of an error or confusion matrix as type 1 (false positive) and type 2 (false negative) errors, which has been discussed in development economics and poverty studies (Brown, Ravallion & van de Walle, 2018; Cornia & Stewart, 1993; White, 2017), has not been discussed in studies of
government business support services. Foley & Klugman (1997) posited that this balance requires a value judgment by government agencies between preferences for higher leakage (type 1 error) or higher exclusion (type 2 error).

This discussion has philosophical implications for how government export support instruments should be set up. Empirical testing would be complicated as it would require following the progress of firms that ‘should have received support,’ according to some objective criteria, and defining firms that ‘undeservedly’ received government support. Arguably, false positives are easier to test empirically as these are already included in the samples but would have to be reliance on the ex post evaluation of ‘undeservedness’, which would raise the question of why were the arguments against the firm considered initially. Naturally, these are also subject to various interpretations regarding construction of the control samples. As a first step, the current exploration is limited to a theoretical discussion of its implications and impacts on an evolutionary context of government export support agencies. One of the theoretical implications of discussing the preference for generous or conservative allocation is the ability to place it in the context of a support strategy seeking to generate higher or lower evolutionary variation. This choice, which is often undertaken implicitly, can have wide consequences for development of a national economy. Emerging economies, where there is a greater need for general exporting knowledge, may benefit more from a generous approach in anticipation of incidental spillovers. Developed economies which have more mature firms may in response to public scrutiny opt for a conservative approach in which only the more likely winners are supported. The circumstances are notably altered when other policy goals are considered such as regional development, SME support policies, or entrepreneurship by disadvantaged groups. A more detailed description of these strategic approaches is presented in Table 2.

**Table 2.** Implications of ex-ante generous and conservative allocation to ex-post accuracy and evolutionary variation.

<table>
<thead>
<tr>
<th>Support strategy</th>
<th>Ex-post accuracy</th>
<th>Evolutionary variation</th>
<th>Support strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Generous allocation</strong></td>
<td>Lower probability of high accuracy</td>
<td>Higher</td>
<td>‘Numbers game,’ relying on spillovers and serendipity from wider engagement</td>
</tr>
<tr>
<td><strong>Conservative allocation</strong></td>
<td>Higher probability of high accuracy</td>
<td>Lower</td>
<td>Accuracy, relying on more meticulous assessment of projects</td>
</tr>
</tbody>
</table>
4 METHODOLOGY

The majority of government export support studies are quantitative. Quantitative research on the topic is usually based on either large secondary datasets or primary survey-based data. There is a major difference between the two types of datasets regarding the measurement of performance. Secondary datasets tend to measure objective performance (actual export sales and export intensity), whereas surveys often employ subjective performance measures (in various wordings). My empirical approach is to find evidence from very different datasets while relying on objective performance measures for validated data. The first essay makes use of a longitudinal dataset consisting of a population of Estonian SMEs that received three types of export support measures, whereas the export performance figures were obtained from their annual reports. The second essay uses a cross-sectional dataset of small sample survey data for the ‘most innovative’ firms in China, but retrieves export performance from the Chinese customs database. The main characteristics of the datasets are summarized in Table 3. By analyzing different datasets from very different sources and by using multiple statistical methods, I aim to establish stronger evidence for government export support across contexts than would have been possible if the focus had been on only one group of recipients. As the result of a journal reviewer request, I conducted validation interviews in essay #1 with four interviews with senior managers from exporting firms in Estonia and two interviews with Estonian ex-senior government officials working with export support from the time the data were collected. However, I emphasize that additional research is certainly required to understand government export support on a deeper level, including research using qualitative methods.

As the datasets and the analysis methods used differ substantially, the essays are discussed individually.
Table 3. Summary of the datasets analyzed in the empirical essays of the dissertation.

<table>
<thead>
<tr>
<th>Essay #1 (Estonia)</th>
<th>Dataset</th>
<th>Timeline</th>
<th>Full dataset size</th>
<th>Regression sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual reports</td>
<td>2002-2018</td>
<td>16,281 firms with 10+ employees</td>
<td>5236 SMEs</td>
</tr>
<tr>
<td>Essay #1 (Estonia)</td>
<td>Recipients of 3 types of government export support</td>
<td>2009-2017</td>
<td>471 SMEs receiving government export support at least once + PSM sample</td>
<td>839 for export plan analysis 405 for trade fair analysis 114 for ministerial visit analysis</td>
</tr>
<tr>
<td>Essay #2 (China)</td>
<td>“Innovation-Oriented Firms Database” collected by China’s Ministry of Science and Technology (MoST)</td>
<td>2008-2011</td>
<td>400 firms, of which 289 exporters</td>
<td>1156 firm-years</td>
</tr>
<tr>
<td>Essay #2 (China)</td>
<td>Chinese Customs Trade Statistics (CCTS) database</td>
<td>2000-2013</td>
<td>All exporting firms in China</td>
<td>1156 firm-years</td>
</tr>
</tbody>
</table>

4.1 Longitudinal Export Support Dataset

Data Description

Essay #1 makes use of a custom-built longitudinal dataset on export support. I compiled it from two types of data: annual report information on firm characteristics (used as control variables) and financial statements (used for deriving the dependent variable, export intensity) and event data on government export support events. The source of the annual reports was the Estonian national business registry, which covers the entire population of Estonian firms. The registry covers not just the publicly listed firms but stores the annual reports of all active companies in the country. After extracting the data for all firms, I narrowed the sample to match a common definition of SMEs by the number of employees according to the reference figures used by European Union: 10 to 250 employees. In other words, the firms outside the filtered sample were either large or micro enterprises. The single-country design used controls for institutional setting and country-specific baseline export intensity. In Estonia, export assistance is easily accessible by any firm that applies and meets the requirements, including foreign investors. Similar conditions apply in many open economies but not in all countries in the world.

The use of secondary datasets is not straightforward. After narrowing the dataset down to a period of stability (starting from the end of the Global Financial Crisis in 2009 structural break) and firm size (10-250 employees according to the definition of SME), I quickly realized that the original spreadsheet tables from the automated mass query were unsuitable for statistical analysis due to missing values, values that had clearly been entered in the wrong fields, zero values for the exports of firms that were certainly exporting, and
other reasons. Export values, which were crucial to the research design for calculating the dependent variable, had to be presented in a non-mandatory annex and therefore the correct data for many firms with missing values were presented in text format sections of the annual report. Hence cleaning the data took months and involved manual checking of thousands of annual reports for original data entries. The lists of firms receiving three types of export support (export plans (EP), trade fairs (TF) and ministerial visits (VIS)) also needed adjusting to account for firm name changes and repeat entries. Finally, I needed to align the databases using unique firm identifier numbers.

The dependent variable, export intensity (export sales divided by total sales of the firm) is a commonly used measure for export performance (Fernández-Mesa & Alegre, 2015). Due to the general Estonian export profile, I chose this over other export performance variables, which consider export geography or export concentration. Despite Estonia being a small open economy, which is well integrated into global value chains, most Estonian firms export (subcontract) to only a few neighboring countries such as Finland and Sweden, whose firms frequently conduct business globally. In the context of low geographic dispersion, export intensity is a reflection of endeavors to compete successfully on more competitive export markets with potentially higher profit margins. I express export intensity in two ways: as a percentage value for chronological time and time sequence regressions and as change in relation to a baseline in reference time and effect length difference-in-differences regressions.

The main descriptive demographic statistics for the population of firms as well as the subsamples of firms receiving the support is presented in Table 4. The correlations between the main variables in regressions are provided in Table 5. In some of the regressions I use propensity matched samples (matching data is provided in Table 6), where firms that received government support were matched to firms that did not. In matching, I only employed data from 2009 as predictor data, as this was the beginning of the observed period. The later data would be influenced by the events that had occurred in the period. This matching provided several advantages—I could build regressions with treatment and control groups of equal size, establish equal and objective grounds for comparison of firm evolution, and control for major characteristics resulting from industry, location, and other demographic aspects. This would be reflected in prior export intensity and number of employees.
Table 4. Descriptive statistics of the population and subsamples of companies that have received support.

<table>
<thead>
<tr>
<th></th>
<th>Companies in the population</th>
<th>Companies receiving any mode of support</th>
<th>Companies receiving support for trade fairs</th>
<th>Companies receiving support for export plans</th>
<th>Companies participating in ministerial visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>10,776</td>
<td>471</td>
<td>147</td>
<td>320</td>
<td>71</td>
</tr>
<tr>
<td>n (manufacturing)</td>
<td>2405</td>
<td>304</td>
<td>106</td>
<td>232</td>
<td>17</td>
</tr>
<tr>
<td>n (services)</td>
<td>1234</td>
<td>105</td>
<td>16</td>
<td>59</td>
<td>43</td>
</tr>
<tr>
<td>Mean age in 2018</td>
<td>16.3</td>
<td>18.3</td>
<td>19.2</td>
<td>18.8</td>
<td>14.3</td>
</tr>
<tr>
<td>Mean export intensity in 2009</td>
<td>19.0%</td>
<td>48.8%</td>
<td>54.6%</td>
<td>50.2%</td>
<td>35.3%</td>
</tr>
<tr>
<td>Mean export intensity in 2018</td>
<td>20.6%</td>
<td>52.7%</td>
<td>56.1%</td>
<td>55.3%</td>
<td>44.5%</td>
</tr>
<tr>
<td>Mean # of employees in 2009</td>
<td>32.7</td>
<td>65.5</td>
<td>59.6</td>
<td>71.3</td>
<td>79.0</td>
</tr>
<tr>
<td>Mean # of employees in 2018</td>
<td>34.4</td>
<td>85.4</td>
<td>70.1</td>
<td>95.9</td>
<td>105.2</td>
</tr>
<tr>
<td>Mean foreign ownership in 2009</td>
<td>14.4%</td>
<td>17.1%</td>
<td>19.0%</td>
<td>16.2%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Mean foreign ownership in 2017</td>
<td>17.0%</td>
<td>22.0%</td>
<td>16.7%</td>
<td>23.8%</td>
<td>25.9%</td>
</tr>
<tr>
<td>Mean foreign management in 2017</td>
<td>5.7%</td>
<td>5.2%</td>
<td>3.8%</td>
<td>5.7%</td>
<td>5.0%</td>
</tr>
</tbody>
</table>
Table 5. Descriptive statistics and correlations.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Age 2018</th>
<th>Capital region</th>
<th>Export intensity 2018</th>
<th>Export intensity 2009</th>
<th># of employees 2009</th>
<th>Foreign ownership</th>
<th>Foreign management</th>
<th>Export plan</th>
<th>Trade fair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age 2018</td>
<td>19.55</td>
<td>5.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital region (dummy)</td>
<td>0.55</td>
<td>0.50</td>
<td></td>
<td>-0.060</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>(0.000)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Export intensity 2018</td>
<td>20.9%</td>
<td>33.8%</td>
<td></td>
<td>-0.056</td>
<td>0.031</td>
<td></td>
<td></td>
<td></td>
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<td>(0.024)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Export intensity 2009</td>
<td>20.3%</td>
<td>33.7%</td>
<td></td>
<td>-0.080</td>
<td>0.011</td>
<td>0.669</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>(0.000)</td>
<td>(0.389)</td>
<td>(0.000)</td>
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<tr>
<td># of employees 2009</td>
<td>31.4</td>
<td>51.0</td>
<td></td>
<td>0.192</td>
<td>0.018</td>
<td>0.143</td>
<td>0.082</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.000)</td>
<td>(0.158)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Foreign ownership</td>
<td>14.4%</td>
<td>33.5%</td>
<td></td>
<td>-0.014</td>
<td>0.158</td>
<td>0.324</td>
<td>0.283</td>
<td>0.140</td>
<td></td>
<td></td>
<td></td>
</tr>
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<td>(0.255)</td>
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<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign management</td>
<td>5.5%</td>
<td>19.9%</td>
<td></td>
<td>-0.087</td>
<td>0.110</td>
<td>0.220</td>
<td>0.184</td>
<td>0.032</td>
<td>0.537</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.012)</td>
<td>(0.000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Export plan (dummy)</td>
<td>0.04</td>
<td>0.20</td>
<td></td>
<td>-0.003</td>
<td>0.033</td>
<td>0.217</td>
<td>0.191</td>
<td>0.139</td>
<td>0.001</td>
<td>-0.001</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.801)</td>
<td>(0.008)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.928)</td>
<td>(0.944)</td>
</tr>
<tr>
<td>Trade fair (dummy)</td>
<td>0.02</td>
<td>0.14</td>
<td></td>
<td>0.004</td>
<td>0.010</td>
<td>0.147</td>
<td>0.148</td>
<td>0.058</td>
<td>0.014</td>
<td>-0.010</td>
<td>0.210</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>(0.756)</td>
<td>(0.429)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.237)</td>
<td>(0.424)</td>
<td>(0.000)</td>
</tr>
<tr>
<td>Ministerial visit (dummy)</td>
<td>0.01</td>
<td>0.08</td>
<td></td>
<td>-0.016</td>
<td>0.044</td>
<td>0.053</td>
<td>0.028</td>
<td>0.059</td>
<td>0.014</td>
<td>-0.008</td>
<td>0.084</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(0.191)</td>
<td>(0.000)</td>
<td>(0.000)</td>
<td>(0.016)</td>
<td>(0.248)</td>
<td>(0.530)</td>
<td>(0.000)</td>
</tr>
</tbody>
</table>

Note: Significance levels in parentheses.
Table 6. Comparison of the effect of support using matched and non-matched samples.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Non-Support</th>
<th>Support</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-matching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Export intensity</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>t</td>
<td>df</td>
<td>p</td>
<td>d</td>
</tr>
<tr>
<td>2009</td>
<td>17.9%</td>
<td>32.5%</td>
<td>50.0%</td>
<td>35.5%</td>
<td>-19.608</td>
<td>7976</td>
<td>0.000</td>
<td>0.943</td>
</tr>
<tr>
<td>Employees 2009</td>
<td>29.7</td>
<td>48.1</td>
<td>59.6</td>
<td>79.9</td>
<td>-11.871</td>
<td>7355</td>
<td>0.000</td>
<td>0.453</td>
</tr>
<tr>
<td>Post-matching</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Export intensity</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>t</td>
<td>df</td>
<td>p</td>
<td>d</td>
</tr>
<tr>
<td>2009</td>
<td>48.3%</td>
<td>38.6%</td>
<td>49.2%</td>
<td>37.0%</td>
<td>-0.303</td>
<td>728</td>
<td>0.762</td>
<td>0.024</td>
</tr>
<tr>
<td>Employees 2009</td>
<td>55.9</td>
<td>59.6</td>
<td>58.2</td>
<td>64.8</td>
<td>-0.491</td>
<td>728</td>
<td>0.624</td>
<td>0.037</td>
</tr>
</tbody>
</table>

Data Analysis

Bundling and rebundling of the same source data and its application to various setups to correspond to the hypotheses and the ‘time dimensions’ studied in the paper are both the main points and the contribution of the essay. As the essay makes use of longitudinal data, the regressions evaluate the impact on the change dependent variable rather than the absolute figure. This has some advantages as described below. The change in the dependent variable (export intensity) in turn is measured in two ways: i) as the difference between data points from annual reports from 2009 and 2018 (linear regression analysis for chronological time and time sequence analysis) or ii) as the change in time-lagged variables (difference-in-differences analysis for reference time and effect length time analysis).

**Chronological time and time sequence.** The first set of regressions explores changes in export intensity between 2009 as the starting point and 2018 as the end point of the entire longitudinal dataset analysis. The comparison of two points in time is common in longitudinal studies of export support and it has the advantage of controlling for business cycle effects as the economic conditions are the same for all firms. Such framing means that I disregarded firms that did not survive the period, both among the recipients and the non-recipients of support. I conducted eight OLS regressions: one for a baseline with no support measures, one with all the support measures, three with only one for each support measure, and three with a combination of measures (time sequence). In practice, I used the split sample method by support usage where the firms that received support were compared to firms that did not. The regressions allowed me to address my research questions: were the three types of government support effective in increasing the recipients’ export intensity, which type was the most supportive, and which sequences of combinations of two types of support were instrumental in achieving export success. The drawback of this method was the inability to consider the year in which the support was received; some firms may have received the
support closer to 2009 and others closer to 2018 and the full effects may have faded or not yet appeared. Furthermore, I could not effectively control for the number of years between the support events for these firms, which received multiple types of support due to their small sample size. However, I addressed the issues of timing in the following sets of regressions.

Reference time and effect length time. For these analyses, I reorganized the data from calendar years to the number of years lagged from the support event. Lagging of the dependent variable in relation to the date of support allowed and required me to change the control group, for which I used the propensity matched sample firms. In each case of support, I matched the supported firm with the respective data from the same period for the matching control firm. In particular, I used $t-1$ as the pre-treatment period and periods from $t+1$ up to $t+4$ as post-treatment periods. In total, essay #1 includes results for twelve difference-in-differences regressions (three support mechanisms x post-treatment years from $t+1$ to $t+4$).

This allowed me to explore two nuances: when the positive effect appeared and where the maximum impact was reached. As calendar years are no longer used as a reference, unlike in chronological time and time sequence regressions, the economic cycle may have an impact on the results via sudden changes in export or domestic demand. As requested by a reviewer, I added control variables for varying economic conditions: one for the change in national GDP, one for national exports and one for domestic consumption as proxies for average export intensity dynamics. Finally, specific to the export intensity change regressions, I controlled for the individual firm export intensity at the reference year $t_0$. This was to account for the available space to increase the export intensity, as it is measured on a 100-percent scale.

Validity and Reliability

Validity and reliability are common quality criteria for academic studies in management science. Validity refers to how accurately the method measures what it is intended to measure; it is typically assessed in various types of validity: construct validity, internal validity, and external validity. Reliability refers to the consistency of the measure, or in other words to whether the same results are obtained under the same circumstances with the same methods.

Construct validity or measurement validity, which assesses whether the measurement captures the concept it intends to, is most relevant in the questionnaire design stage. As I used secondary data for objective measures, I could not add additional variables to the questionnaire. Cerar, Nell & Reiche (2021) discussed the increased popularity of secondary
data in IB studies and argued that there are two explanations for it: increases in the quality and versatility of secondary data and *perceived* increases therein. In choosing my dataset I argued in favor of the former, as the accuracy of the data and its correctness are verified by the firm under its legal responsibilities. However, I admit that this could be a misperception as the data reported in annual reports can also be subject to various biases. The database of support activities is maintained by the national export support agency. Further, I manually checked the data for inconsistencies and illogical entries and when there were inaccuracies in the automated query, I found replacements from actual annual reports.

Internal validity refers to whether the presumptive cause and effect relationship has other explanations. In management sciences, this is tricky because true experiments can rarely be set up. For a discussion regarding the impossibility of random controlled trials in government export support studies, see Dalziel (2018). However, I attempted to minimize the possibility of other explanations by using the data of an entire population, constructing a control group with matched propensity scores. I employed a large number of control variables, for foreign ownership and management (relevant for export studies), industry, and macroeconomic variables. Although the existence of other explanations that play a role in cause and effect cannot be ruled out entirely, I believe I have covered everything for which it was possible to obtain objective data during the period of the study.

External validity is concerned with the generalizability of findings across different settings and times. I explore three export support mechanisms in one country to illustrate the differences between the impacts of these support instruments. For discussions of generalizability, additional evidence from other settings is needed. Furthermore, government export support is context-dependent, and some authors would certainly find different results in different samples in different countries. However, I believe that some novel aspects (e.g. time sequence) of my essay will be of interest to other authors and if my research design is repeated, the results would hopefully appear similar in other country contexts. Finally, I would like to emphasize that one of the main messages and contributions of my essay is to urge other researchers to carefully consider and discuss their time frame selections as they may influence interpretation of their results.

The reliability of the results in essay #1 is provided firstly by annual reports and registry data with high construct validity. Objective, and often audited, financial and binary event data mean that there is no confusion regarding interpretations of the data by other researchers. However, different time frames for the analysis can be chosen. In my analysis, I chose to select the maximum time period available to make use of the largest samples.
possible and thus obtain sufficiently large sample sizes for the greatest number of time sequence analysis opportunities. During my analysis, I also tried the regressions with other year pairs, which generally confirmed my results, although they lost statistical significance in some cases due to smaller sample sizes. The reliability of the results is supported by my validation interviews, especially those with the public sector stakeholders, who presumed analogous results with regard to various support mechanisms and described a similar sequence of services for the optimal export result (before I informed them of my results).

4.2 Cross-sectional Innovation Dataset

Data Description

The cross-sectional innovation dataset used in essay #2 relies on two Chinese secondary datasets. The dataset, which is the source of most of the variables, is the “Innovation-Oriented Firms Database” collected from 2008 to 2011. This is a survey conducted by China’s Ministry of Science and Technology (MoST) with which the MoST checks whether a firm meets the criteria required for receiving a project subsidy. For example, does it meet the minimum threshold for R&D intensity, developed patents, or service innovations in the last three calendar years? The survey consists of a number of questions about innovation and the dataset, which can be accessed by only a limited number of people, is one of the most detailed innovation surveys ever conducted in China. Export intensity was calculated with the data obtained from the Chinese Customs Trade Statistics (CCTS) database. Statistically, most of the firms in the sample were large firms, as only 4% of the firms had less than 250 employees. The raw data could only be accessed by my Chinese coauthors and therefore the first layer of statistical analysis was performed by them.

We reduced the final sample used in the study from the available 400 firms in the MoST database to 289 firms by eliminating non-exporters because we could not verify that the non-exporters in the dataset had not used intermediaries. The sample size used in the analysis consists of 1156 firm-year observations. As in essay #1, I used export intensity as my dependent variable. I selected this variable over alternatives such as geographical spread of exports due to its low mean value (10.2%). This figure implies that securing an adequate export share was a more serious challenge than market diversification for the firms in the sample during the data collection.

The independent variable, government support for R&D, is measured by adding the total amount of government R&D support provided via various support mechanisms. Although the dataset consisted of funding through specific programs, the measure I used is
for total support. The measure of the mediating variable, innovativeness, the number of patents per employee, is a commonly used measure for innovation output (Quintane, Casselman, Reiche & Nylund, 2011). The patent data were collected by the MoST survey and reflect the invention patents applied for in the surveyed year. In the Chinese context, there is an ongoing question of whether patent applications are a suitable measure for innovation in China due to local government patent subsidy programs (Li, 2012) or whether they are in fact relevant because they correlate with R&D input and financial performance (Dang & Motohashi, 2015). However, it is the most objective measure available and is one of the most commonly used measures of innovation in the extant literature. Finally, I use two moderator variables: a variable of internally submitted suggestions per employee to account for employee involvement for intrinsic motivation and a variable to account for the usage of bonus incentives for extrinsic motivation. The descriptive statistics for dependent variables, moderator variables, independent variables, and control variables are presented in Table 7.

**Table 7. Descriptive statistics and variable definitions.**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description of the variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std.Dev.</th>
<th>Min</th>
<th>Max</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Export_intensity</td>
<td>the ratio of exports to total revenue</td>
<td>1156</td>
<td>0.102</td>
<td>0.169</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Government_R&amp;D</td>
<td>ln(1+total government R&amp;D)</td>
<td>1156</td>
<td>0.715</td>
<td>0.802</td>
<td>0.5</td>
<td>5.583</td>
<td>1.61</td>
</tr>
<tr>
<td>Innovativeness</td>
<td>ln(1+applied invented patents per 100 employee)</td>
<td>1156</td>
<td>0.424</td>
<td>0.390</td>
<td>0</td>
<td>1.261</td>
<td>1.21</td>
</tr>
<tr>
<td>Suggestions</td>
<td>ln(1+the number of suggestions per employee)</td>
<td>1156</td>
<td>0.158</td>
<td>0.230</td>
<td>0</td>
<td>0.683</td>
<td>1.02</td>
</tr>
<tr>
<td>Bonus_incentive</td>
<td>‘1’ for using cash bonus as the first choice of incentive</td>
<td>1156</td>
<td>0.691</td>
<td>0.454</td>
<td>0</td>
<td>1</td>
<td>1.02</td>
</tr>
<tr>
<td>Size</td>
<td>ln(total assets)</td>
<td>1156</td>
<td>12.412</td>
<td>1.918</td>
<td>7.089</td>
<td>17.583</td>
<td>2.26</td>
</tr>
<tr>
<td>Age</td>
<td>ln(firm age)</td>
<td>1156</td>
<td>2.749</td>
<td>0.596</td>
<td>0</td>
<td>4.357</td>
<td>2.00</td>
</tr>
<tr>
<td>Export_experience</td>
<td>‘1’ for firms with more than 8-year exporting experience</td>
<td>1156</td>
<td>0.616</td>
<td>0.487</td>
<td>0</td>
<td>1</td>
<td>2.00</td>
</tr>
<tr>
<td>ROA</td>
<td>return on assets</td>
<td>1156</td>
<td>0.075</td>
<td>0.081</td>
<td>-0.513</td>
<td>0.503</td>
<td>1.04</td>
</tr>
<tr>
<td>Listed</td>
<td>‘1’ for listed firms</td>
<td>1156</td>
<td>0.543</td>
<td>0.498</td>
<td>0</td>
<td>1</td>
<td>1.24</td>
</tr>
<tr>
<td>R&amp;D_intensity</td>
<td>the ratio of R&amp;D expenditure to total revenue</td>
<td>1156</td>
<td>0.053</td>
<td>0.072</td>
<td>0</td>
<td>1.487</td>
<td>1.23</td>
</tr>
<tr>
<td>Foreign_R&amp;D</td>
<td>‘1’ for having foreign R&amp;D investment</td>
<td>1156</td>
<td>0.130</td>
<td>0.336</td>
<td>0</td>
<td>1</td>
<td>1.15</td>
</tr>
</tbody>
</table>
Data Analysis

The analysis of essay #2 was based on nine OLS regressions. These include the baseline model, two models for two stages of the mediated relationship, and six (2x3) moderated models with two moderators applied individually and then together to both stages of the mediated relationship. When discussing mediation effects, it is important to underline the point that the theoretical literature suggests that a mediated relationship can exist even if a direct relationship is unconfirmed (Agler & De Boeck, 2017; MacKinnon, Lockwood, Hoffman, West & Sheets, 2002). Baron & Kenny (1986) called this situation full mediation. Zhao, Lynch and Chen (2010) extended the typology to five categories, where my findings correspond to the indirect-only mediation in their typology of mediated relationships. In practice, this implies that the relationship between the main independent variable and the main dependent variable is context dependent and expected only if the independent variable leads to an increase in the mediating variable. I conducted a Sobel test (Sobel, 1982) to confirm the statistical significant presence of mediation by innovation in the relationship between government support for R&D and the of export intensity. To ensure the robustness of the results compared with alternative measures and methods, we used the Bayesian mediation approach (Zhang, Wedel & Pieters, 2009). To alleviate concern regarding endogeneity, we applied a two-stage least squares (2SLS) model (Beck, Lopes-Bento & Schenker-Wicki, 2016) with two instrumental variables, average government subsidy level by industry and average government support for R&D by industry and region.

Validity and Reliability

As essay #1 and essay #2 both make use of secondary data, some implications of validity and reliability are similar. The differences appear from the difference in the sample, where essay #1 relied on population data while essay #2 used a sample of surveyed firms with a distinct profile. Furthermore, the essay #2 survey questions were not audited or maintained by registries and are more subjective in nature. Hence essay #2 more closely resembles survey studies with certain unique data regarding features that secondary datasets rarely collect. Nonetheless, the use of secondary data was limited because I could not alter the wording or add further questions with different wordings.

Construct validity, i.e. measurement validity, differs between the variables. Although all independent, dependent, and moderating variables are theoretically expressed in objective terms, only export intensity figures are taken from the secondary trade dataset; other variables are reported in a survey questionnaire. Survey responses are subject to respondent biases,
such as incorrect reporting and desirability bias. However, data on government R&D funding, patents, employees, and revenue, which form the core of the mediated relationship, are clearly defined and widely used numerical data, which help to reduce reporting errors. The moderating variables represent proxies for internal and external motivation, and there the number of possible interpretation variables is larger, including completely subjective survey questions. The use of archival proxies collected for other purposes has been likened by Ketchen, Ireland & Baker (2013) to ‘castles made of sand’ due to the variety of interpretations made by various researchers. However, they did not advise against using them but suggested comparing future interpretations with the work of earlier researchers and discussing their weaknesses. They also emphasized the need for authors to provide sound logic. Essay #2 explains why we considered the proxies to be reasonable estimations for our intended constructs. Due to available data and measurement validity considerations, we chose variables that are as objective as possible and do not discriminate for firm size (the number of suggestions divided by the number of employees). However, as the preferred incentive systems may be unclear and the number of suggestions is tracked only informally or counted intuitively, the variables are subject to inaccuracy on the individual firm-level. Nevertheless, for a sample of firms, such estimation errors are probably not larger than those for other subjective constructs.

Internal validity and the clarity regarding cause and effect is an issue in business support studies, as random control trial designs cannot be used (for discussion, see Dalziel, 2018). In addition, Yang, Wang & Su (2006) argued that any non-experiment-based IB research results must have been drawn from post hoc inference. Acknowledging these general limitations in business research, we controlled for endogeneity primarily by lagging the independent variable for government support for R&D. I acknowledge that as government support is based on applications and approvals, there is a self-selection bias to our independent variable. Beyond the situations where vested interests may impact the evaluation (e.g. Wang, Li & Furman, 2017), the firms that qualify for the assistance are likely to have similar profiles of merit and even similar shortcomings (for the latter, Torres, Clegg & Varum, 2016, found that government support of internationalization is often obtained by firms with financial constraints that want to transfer risks to external partners). These are common constraints for any government support study (e.g., Alvarez, 2004; Martincus & Carballo, 2010). I do not attempt to establish a unique pathway from government support to exports but merely describe one option that may well be useful to other authors.
External validity limitations are partly set by the focus sample, which is comprised of data collected from the most innovative firms in the country. The sample consisting of extreme outlying firms was intentionally used to study the context of innovation as extreme samples often reveal different patterns than those of population studies (Andriani & McKelvey, 2007). For example, when studying innovation, an average firm would not demonstrate patenting patterns. The essay does not make general claims but shows that a certain type of moderated mediation relationship is possible and that government support need not be targeted at exports to achieve higher export performance. Nevertheless, if such data were available in other countries and contexts, I would encourage researchers to study them to establish more universally applicable models with relevance to theoretical frameworks for exports.

The reliability of the variables is related to their measurement validity. In a secondary dataset, data may be biased due to the reasons for collection, but these are beyond the researcher’s control. By using an external dataset for the source of the dependent variable, we reduced the bias of one survey. Furthermore, the dataset covers 4 years of responses from the same firms, which allows us to check for consistency in answers that are not likely to be volatile within the years covered by the study. Finally, to verify the robustness of the variables, we switched the main constructs with variables of similar content and obtained similar results, thereby confirming the reliability of our results.

4.3 Limitations of the Datasets
The datasets used in the dissertation are secondary datasets where additional data points could be added only by matching the firms with data in other datasets. To the extent that it was possible, I included additional data with relevance to government export support and the data categories that could have an impact on the output indicators. However, secondary datasets carry important limitations, such as the lack of self-reflection and the inability to add survey questions concerning the historical situation, except for conducting another survey that would suffer from hindsight bias. Therefore, some aspects of firm internationalization, such as management profiles and international experience or strategies of market entry can be employed only as general proxies (such as the share of foreign management). Further, the survey questionnaires of the data collection have been prepared for a specific purpose and the respondents may have been biased in answering the questions depending on social desirability or other indirect subjective factors. The latter is also a limitation of primary data collection and can be addressed to some extent by the researcher through survey design.
that regard, the registry data and annual reports (such as it was used in essay #1) are likely one of the most objective sources of data. Such data is objective and is prepared for the general public. It may be a source of information for investors and competitors, or used to check for tax compliance.

The two empirical datasets are not comparable inasmuch as the firms have different characteristics: the dataset in essay #1 covers the national population of SMEs, whereas the essay #2 studies a small sample of innovators, where SMEs form a minority. A comparison or generalization was not the goal of the dissertation. Instead, the aim was to illustrate and identify aspects that play a role in enhancing exports after receiving government support, and which can inform more general theories. Further, the characteristics of the two countries are also very different: Estonia is a small open economy dominated by SMEs, China is a large economy that is open for trade but closed and state-controlled in many aspects of business, despite major changes over the past decades. Naturally, these settings also determine the conditions under which the government support is allocated. Studies of one country are always subject to criticism based on the particular conditions in the country and may lack generalizability. However, due to differences in export support programs, multi-country datasets are difficult to assemble, unless they focus on specific support instruments that are available in many countries under uniform conditions. These secondary datasets are likely to include even more abstract or fewer firm-specific details instrumental to uncovering the microfoundations of government export support.
This dissertation consists of three individual essays. Two of the essays are empirical and one is conceptual. The essays examine and discuss the effects of government support provided to firms seeking to internationalize. Although the independent and dependent variables of the studies are intentionally similar, they are operationalized differently in order to inform the reader about the relevant research questions. The two empirical studies use data on government support received as the independent variable and evaluate the impact on export intensity (export sales divided by total sales) as the dependent variable. The conceptual essay raises the issue of whether empirical studies can accurately determine the efficacy of government support. The three essays concur that although it is possible to assess the benefits of government assistance for exports, the research questions posed should be more nuanced than those commonly asked. The results are affected by the framing of the time dimension, mediating and moderating variables, evolutionary background context, and the propensity for errors by the decision-maker.

Figure 7 compares the approaches taken by the three essays with the traditional approach of government export support studies. I provide a brief summary of each essay, including the objective, the theoretical background, and the findings. Earlier versions of the essays were presented at the following conferences:

Essay #1:
- Academy of International Business annual conference (virtual), in interactive session and in doctoral consortium under the title: “SME Exports and the Role of Governmental Assistance,” July 2020.

Essay #2:
- Academy of Management annual conference (virtual) in International Management Division Paper Development Workshop, August 2021.
- European International Business Academy annual conference in competitive track, December 2021, Madrid.
- Academy of International Business annual conference in competitive track, July 2022, Miami (by a coauthor).
- Academy of Management annual conference in main program, August 2022, Seattle.

Essay #3:
- Poster presentation at European International Business Academy annual conference, December 2022, Oslo.

**Figure 7.** Comparison of the research contexts in three essays and traditional empirical articles on government export support.

<table>
<thead>
<tr>
<th>Traditional approach</th>
<th>Essay #1</th>
<th>Essay #2</th>
<th>Essay #3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Government support (1-2, max 4 instruments)</strong></td>
<td><strong>Government support (3 instruments); event data</strong></td>
<td><strong>Government support (to R&amp;D); supported amount</strong></td>
<td></td>
</tr>
<tr>
<td>Comparison: treatment vs control group</td>
<td>chronological “clock” time</td>
<td>Mediated by: innovativeness</td>
<td></td>
</tr>
<tr>
<td>Export performance (often: export intensity)</td>
<td>“stopwatch” reference time</td>
<td>Moderated by: extrinsic &amp; intrinsic motivators</td>
<td></td>
</tr>
<tr>
<td>Method: OLS/ANOVA or difference-in-differences or probit</td>
<td>time sequence</td>
<td>Export intensity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>effect length time</td>
<td>Export intensity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mediated by: innovativeness</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Moderated by: extrinsic &amp; intrinsic motivators</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Export intensity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Conceptual article:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- “Should efficiency (or efficacy) be the focus of RQs?” (type 1, type 2 errors in decisions and their relative preferences)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Relevance of time aspects</td>
</tr>
</tbody>
</table>

- Poster presentation at European International Business Academy annual conference, December 2022, Oslo.
Essay #1

In the first essay, I extend the boundaries of empirical research on government support for exports. The key argument of this essay is that the apparent efficacy of government support depends on the data you look at, including the focal support instrument used and the “time dimension” (Jones & Coviello, 2005) for which the data are framed. As I discovered, the various dimensions of time were important for interpretation of the results and when considered jointly, provide a richer and more complete picture of the underlying phenomenon. By using export performance (change in export intensity) as the dependent variable, and three independent variables for types of export promotion activities executed with governmental support (developing an export plan, attending a trade fair, and participating in a ministerial VIP visit), I reached a slightly different interpretation after analyzing the empirical data for i) chronological “clock” time, ii) “stopwatch” reference time, iii) time sequence, and iv) effect length time.

The essay contributes to previous literature on government export support programs (Freixanet, 2012; Durmusoglu, Apfelthaler, Nayir, Alvarez & Mughan, 2012), which found mixed albeit generally positive evidence of its usefulness. Entering foreign markets is difficult for most companies due to the liability of foreignness (Zaheer, 1995), which posits that any company entering a foreign market is at a disadvantage. The challenges of expanding abroad are doubled for SMEs, which also face the liability of smallness because they possess fewer resources (Paul, Parthasarathy, & Gupta, 2017). Paul et al. (2017) also suggested that SMEs should make use of institutional support, such as government incentives, to secure export success. Also, numerous studies assert that smaller firms benefit more from export promotion actions than larger firms (e.g. Martincus & Carballo, 2010; Leonidou, et al., 2011; Monreal-Pérez, & Geldres-Weiss, 2019). Typically, these studies analyze impacts over one or a few calendar years, which is also the method I employed for the baseline analysis. However, I also developed a conceptual framework with three axes: a horizontal axis (for the calendar time), a vertical axis (for events in cross-section of time), and a z-axis (time-invariant sequence time). The framework is illustrated in Figure 8.
As is common in export support research, this essay is grounded in event study data. In the analysis, I use a longitudinal data set of Estonian SMEs receiving different types of government export support from 2009 through 2017 constructed from registry data covering the entire population of Estonian firms. The resulting sample consisted of 10,776 SMEs. For difference-in-differences analysis in reference time and effect length time regressions, the firms were matched with propensity score matching. The novelty of the essay and analysis results from its multiplicity of framings and methods because only a few studies of government support compare different support measures (e.g. Alvarez, 2004; Monreal-Pérez & Geldres-Weiss, 2019) and none compare results in a variety of time dimensions. The study also illustrates that paying closer attention to time and acknowledging its various types can make a study more informed and consequently useful for many other researched phenomena in IB and management studies.

Overall, my findings demonstrate that all three government export assistance mechanisms proved beneficial in increasing SME export intensity. The most efficient mode of support is a government-supported strategic export plan, visualized in Figure 1a as the longest duration of the F3 component. However, substantive differences appear in nuances that can be matched with various dimensions of time. Export plans and ministerial visits presented immediate effects, whereas trade fair effects took two years longer to reach similar
significance. However, the empirical results also indicated that various interventions have effects of different lengths. Thus, I proposed adding a subsection of reference time referred to as “effect length” as an additional dimension of time in addition to those suggested by Jones and Coviello (2005). The data showed that support for an export plan produced the longest-lasting effect while the briefest benefits were provided by ministerial visits. Finally, I found evidence that the sequence of support modes matters. In short, it is beneficial to use multiple support mechanisms; the optimal order for increasing export intensity is the following: first, participating in a trade fair, subsequently composing a strategic export plan, and finally taking part in ministerial trade missions. This order was confirmed by validation interviews with policymakers. None of the four interviewed senior managers from exporting firms in the sample mentioned having knowingly used the different types of government support in a particular order, although they demonstrated an understanding of the appropriateness of different mechanisms in different stages of exporting and also suspected differences as to when they appear and how long they last.

**Essay #2**


In the second essay, my research question is the following: Does government support for innovation lead to increased innovation output and in turn to a larger proportion of sales in foreign markets?

I focused on mediators and moderators in the relationship between government support and export performance. Employing data on government support for R&D and innovation, I detected a mediating relationship between innovativeness and export intensity. As I argue, government support does not need to be directed towards exports in order to result in improved export performance. Further, I explore the role of intrinsic and extrinsic moderators in each phase of the mediated relationship.

The essay bridges the innovation and export literatures in a novel way. Whereas theoretical literature suggests that innovation and exports are complementary and either unidirectional (e.g. Cassiman & Golovko, 2011, from innovation to exports or Bustos, 2011, from exports to innovation), or bidirectional (e.g. Golovko & Valentini, 2011; Monreal-Perez, Aragon-Sanchez & Sanchez-Marin, 2012), this study of the most innovative firms in China indicates that the link from government support to R&D to exports is not
straightforward but comes about via innovation. Previous literature has not examined the effect of government R&D support on both innovation and exports but only one or another, although mostly on innovation.

Secondly, via the moderators, the essay creates a link between the organizational motivation literature and the two previously mentioned literature streams, i.e. on innovation and exports. Hellmann and Thiele (2011) argued that if innovation could be planned, firms would create incentive contracts linked to measurable innovation objectives. I examined how intrinsic (employee suggestions) and extrinsic rewards (bonus incentive systems) affect the stages of the mediated relationship. While so doing, I acknowledge that the reward type and the motivation type are not always fully aligned. For example, extrinsic rewards can support intrinsic motivation as a positive performance feedback channel and as encouragement to complete a creative task (Amabile, 1993).

Relevant to the knowledge-based view (KBV; Grant, 1996), trusting relationships encourage employees to make firm-specific human capital investments that eventually benefit the firm (Wang, He & Mahoney, 2009). I argued that on average, the process of involving employees improves output; the pool of ideas grows larger and employees develop closer ties to the firm. By using a variety of theoretical sources, I hypothesized that moderation of intrinsic rewards occurs during both stages of the mediated relationship. In the first stage, I followed the intuitive relationship between intrinsic motivation and creativity. In the second stage, I relied on proximity to the customer. Knowledge of customer’ needs relates to Polanyi & Prosch’s (1975) discussion of indwelling, through which social knowledge is created, and Von Krogh’s (1998) perspective, which refers to a shift from “looking at the customer with his problems” to “looking with the customer at his problems” (p.141). I then turned to moderation by financial incentive, and built upon Amabile’s (1993) experimental research, which demonstrates that extrinsic incentives harm creativity but do not hinder work on technical quality. Lastly, I looked at the somewhat obvious connection between bonuses and export performance. Research on this question is complicated by the fact that bonus systems do not necessarily differentiate between domestic and export sales.

Finally, I leveraged evolutionary economics to provide a conceptual explanation of the process of government support leading to exports through two rounds of “variation” and “selection.” According to an evolutionary economics perspective, Stieglitz and Heine (2007) asserted that the corporate resource base creates innovation through constant variation and the marketplace tests the new products by selection. Alchian (1950) discussed at least two sources of inter-firm variation: uncertainty due to differing judgments and opinions and trial-
and-error due to both intentional and unintentional invention. However, like the processes of innovation, variation is also created by governments allocating R&D support to a number of firms. Selection is “applied” by firms that receive R&D support but do not innovate and by firms that innovate but are not successful in export markets. An illustration of this proposed theoretical framework is provided in Figure 9. The applicability of the model to the sample is also illustrated by low median export intensity in the sample, 10.2%, confirming that the variation and selection phases are challenging even for the innovative firms in the sample.

**Figure 9.** Theoretical model of “variation” (increasing the number of scenarios towards the desired outcome) and “selection” (decreasing the number of scenarios towards the desired outcome) rounds after allocation of government support for R&D.

The essay builds on Chinese datasets from the “Innovation-Oriented Firms Database” collected by China’s Ministry of Science and Technology (MoST) from 2008 to 2011 and the Chinese Customs Trade Statistics (CCTS) database. The analyzed sample consists of 289 highly innovative firms, specifically of 1156 firm-year observations. The model consists of a series of ordinary least squares (OLS) regressions with two-stage least squares (2SLS) regressions for robustness check. The essay confirms that the relationship between government support for R&D and exports is not direct but mediated by innovativeness. Furthermore, different incentives impact different stages of the mediated relationship. This has implications for the employee motivation literature. Financial incentives, such as bonus systems addressing extrinsic motivation, have an impact on the relationship between government support for R&D and exports.
government support for R&D and innovativeness but not on the relationship between innovativeness and exports. The opposite is the case with intrinsic motivation. Namely, employee participation in suggestion systems, which addresses intrinsic motivation, affects the relationship between innovativeness and exports but not the relationship between government support for R&D and innovativeness. This is somewhat unexpected because participation is intuitively linked to innovation output. However, as the literature on employee participation suggests that many of these activities are intended to enhance processes and upgrade the quality of the product, the resulting improvement in export competitiveness makes sense. The results are summarized in Figure 10.

**Figure 10.** Results of the empirical analysis with significant results marked in bold.

![Diagram of the relationships between government R&D support, innovativeness, export intensity, intrinsic motivation, and extrinsic motivation.](image)

Finally, the research has the potential to contribute to cultural aspects of IB. As data used in the study are from China, where there is ample evidence of a materialistic shift amongst the Chinese workforce, it is interesting to note that financial incentives appear to affect innovation output but not export activities. The latter aspect is counterintuitive and therefore deserves more investigation.
Essay #3


The third essay addresses the assumptions of traditional research on government support and offers an explanation of the heterogeneity of empirical evidence (e.g. Freixanet, 2012; Durmusoglu, Apfelthaler, Nayir, Alvarez & Mughan, 2012). By discussing the sequence of events in application-based support allocation processes, it points to factors that affect decisions such as the binary nature of the decision (positive or negative) and the pressure on governments to achieve “results” and efficiency and to “be right.” The theoretical framework extends to discuss type 1 (false positive) and type 2 (false negative) errors and their antecedents and implications, but also to the strategic choice between these that may depend on the level of development in a national economy or a particular target group. Although much of the export support literature studies SMEs, the essay discusses general and conceptual issues involving allocation of support, imposing no limits on firm size or other demographic features.

This conceptual essay builds on the literature review on government export support, the discussion of time from the first essay, the evolutionary approach from the second essay, and adds an aspect from the development economics literature (which discusses the allocation of government support in poverty contexts). In particular, the generalizability of findings across contexts should be assessed from the perspective of evolutionary economics, i.e. cycles of variation-selection (Winter, 2014) cause export agencies and the firms tend to be different over time. Inspired by theories of genetics, variation is used to denote an increase in the number of options such as new products or services resulting from innovation. Selection, on the other hand, represents narrowing of the viable options (tested and filtered by the market after their introduction). When allocating export support, governments get involved in such “search activity” (Dew, 2009) and shape their underlying “industry architectures” (Jacobides & Kudina, 2013) to reach a “dominant design” (Nelson & Winter, 2002).

The essay is also inspired by discussion of decision accuracy in development economics, which has indicated the expectedness of type 1 and type 2 errors for which the decision-maker must make a ‘value judgment’ (Foley & Klugman, 1997) on their relative importance, which in turn determines the strategy used by the support agency. The literature on firm internationalization has implicitly focused on the true negative cases of decisions—firms that neither received support nor needed it. Most government export support literature
has employed an econometric *true positive* approach, to determine whether the intervention was effective, or in other words, whether the support helped the firms that were in need of it. The implications of all four types of decisions are summarized in Table 8.

**Table 8.** Implications of type 1 and type 2 errors of government support.

<table>
<thead>
<tr>
<th>Firms supported</th>
<th>Firms in need for support</th>
<th>Firms not in need of support</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>True positive</strong></td>
<td>A common focus of empirical research on government support that assumes there is a simple numerical answer regarding the benefits of export support</td>
<td><strong>Type 1 error – false positive /leakage</strong></td>
</tr>
<tr>
<td><strong>Firms supported</strong></td>
<td>Occurs more likely in ex-ante generous allocation</td>
<td>A common concern in research policy literature (Clarysse, Wright &amp; Mustar, 2009)</td>
</tr>
<tr>
<td></td>
<td>Statistically lower average return due to ‘poor project appraisal’</td>
<td>Advantages:</td>
</tr>
<tr>
<td></td>
<td>Creating more variation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Potentially more useful in emerging economies (spillover effects, financing need among quality projects) or SMEs (e.g., Isaksen &amp; Remoe, 2001)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Firms not supported</th>
<th><strong>Type 2 error – false negative /exclusion</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Occurs more likely in ex-ante conservative allocation</td>
<td><strong>True negative</strong></td>
</tr>
<tr>
<td>‘Invisible’ in empirical studies of samples of supported firms</td>
<td>A common (implicit) focus of ‘regular’ IB models, which do not include or comment on the role of government export support</td>
</tr>
<tr>
<td>Caused by a lack of resources, inadequate planning or manipulated by a firm exercising its institutional competitive advantage (Martin, 2014)</td>
<td></td>
</tr>
<tr>
<td>Creating less variation</td>
<td></td>
</tr>
<tr>
<td>Potentially more harmful in emerging economies (potentials not realized)</td>
<td></td>
</tr>
<tr>
<td><strong>Advantages:</strong></td>
<td></td>
</tr>
<tr>
<td>Statistically higher average return (if vested interests and mistargeting are avoided) – appealing to policy makers (Cornia &amp; Stewart, 1993 argue that type 2 errors can happen when trying to avoid type 1 errors)</td>
<td></td>
</tr>
</tbody>
</table>

Government export support is clearly subject to type 1 and type 2 errors in judgement. The literature should not focus only on true positive and true negative research questions, but
should instead extend the focus to the decision context, including the specific inaccuracies of decisions. However, the preferences for generous or conservative allocation of support will result in a higher or lower evolutionary variation. This leads to two opposite strategies for export support used by governments, the “numbers’ game,” which relies on spillovers and serendipity from wider engagement, and striving for accuracy, i.e. relying on more meticulous assessment of projects. If this knowledge is added to the arsenal of routines and combined with the tools of export support agencies and policymakers, one could be assured that the government approach to business development services, offered via public funding, would reach a higher level of sophistication and effectiveness than exists today.
6 DISCUSSION AND CONCLUSION

6.1 Role of Government Support in Fostering Exports
As Adam Smith observed (quoted in section 1.1), firms need certain kinds of encouragement to export. For example, firms may learn via normal business contacts that certain export markets hold the promise of increased sales or higher profitability. In many cases, they struggle to find quick and easy entry and may fail to realize their full potential. As this concerns private entrepreneurs, governments do not need to do anything. However, because exports create jobs, tax revenues, and often higher employee salaries, governments do act to support firms in entering foreign markets.

My goal in this dissertation is to raise awareness of the topic of government support and expand its theoretical frameworks to include areas of concern not currently discussed. Therefore, my research question is not the traditional ‘does government support have a positive impact on exports?’ but rather ‘what else matters?’

6.2 Theoretical Contributions
The three essays in this dissertation make four major theoretical contributions to the discussion of the microfoundations of government support for exports.

First, a time dimensions framework was introduced in essay #1. The usual framing of time in longitudinal studies is ‘chronological time’ or ‘reference time,’ which does enable comparison of progress over time and provides only one perspective on the results. Empirical studies of export support lack coherence in the absence of a standard time frame and could greatly benefit from a comparative analysis of effects in various time dimensions (Tinits & Fey, 2022). For the first time in government export support studies and possibly the first time in empirical studies in IB, I use the ‘time dimensions’ framework (chronological time, reference time, time sequence, time periods, time duration, time intensity, cyclical dimension, gap time, and rate of internationalization) introduced by Jones & Coviello (2005) to compare and contrast empirical results in various time dimensions. My analysis demonstrates that the impact of a support event changes over time, implying that any empirical research should pay close attention to the time frames selected for analysis. Moreover, as I derived differently nuanced interpretations of results in different time dimensions, I argue that selection of a timeframe and the time dimensions studied should depend on appropriateness, and not on convenience resulting from data availability. The length of the time frame for analysis needs to be long enough for effects to reach their full impact but take into account the diminishing
effects of the support. Furthermore, research questions should be carefully framed to provide answers to the question posed by the researcher. For example, the focus could be on the maximum effect or effect length, the start of the impact or the end of the impact, or its impact at a particular point in time.

Second, moderators and mediators of government support were discussed in essay #2. Traditionally, government export support literature has considered the impact of support provided to a firm to be a linear cause-effect relationship. This simplification is unrealistic since the success of a firm through intervention in the form of government support depends on many organizational factors. In essay #2, I explored the role of two organizational motivators related to intrinsic and extrinsic motivators in enhancing export intensity in firms receiving government support for R&D. I emphasize that the variables used in my empirical model are by no means the only moderating variables that may play a role in government support given to exports relationships, and I demonstrated the importance of not overlooking moderating variables and including them in empirical models.

Third, an evolutionary perspective on government support was developed in essays #2 and #3. Evolutionary economics frameworks have been used in studying innovation (Malerba & McKelvey, 2020), but have not made it into the IB literature, even though some of the most common frameworks in firm internationalization, such as Uppsala model of internationalization (Johanson & Vahlne, 1977), discuss firm evolution over time. In essays #2 and #3, I discuss the role of variation, selection, and retention among the sample or population of firms receiving government support. Unable to predict which firms will succeed, governments create variation by allocating support to a large number of companies. The firms, in turn, increase variation further via intra-firm processes that include knowledge and employee participation and the ensuing innovation. Selection mechanisms appear on two levels. Not all firms deliver innovation, and not all innovations materialize into results within firms. Finally, the two layers conclude with the ultimate test, export success or failure by market forces. This selective cycle serves to explain why, even in a sample of firms selected for innovativeness, the overall export intensity may still be very low. By deciding which firms receive government support, the government agency essentially influences the future composition of firms and may unwittingly determine whether they continue operations and internationalization. This occurs due to the explicit action of providing resources to some firms and not to others. But it is also due to the indirect effect of government support, such as increased legitimacy for the activities of firms (e.g. Suchman, 1995; Zhang, Ma, Wang, Li, & Huo, 2016) and psychological benefits (Raitis & Pelto, 2021).
Fourth, the decision accuracy of government support decisions was discussed in essay #3. I examined the complexity surrounding decisions on where to allocate government support. Prior literature implicitly treated the role of government internationalization support as cases of *true positive* or *true negative*. However, I argue that this framing should be extended to *false positive* and *false negative* cases. This inclusion is important not only due to uncertainty regarding the future or explicit decision-making errors, but also to inherent choices in the design of support measures. On this point, there has been very little if any discussion on targeting in government export support literature and critically on whether the support measures should be designed to be inclusive or exclusive.

None of the four theoretical contributions are featured in existing frameworks and a better understanding of them would enable development of new theoretical frameworks and practical guidelines for managers and policymakers. Regrettably, neither does my dissertation provide a holistic all-encompassing theoretical framework of firm internationalization including the contribution of government export support. Nevertheless, I build on aspects of microfoundations that likely play a significant role in its effectiveness and on information future researchers and practicing managers and policymakers may find useful to take into account.

### 6.3 Managerial Implications

Managers seeking to internationalize are primarily interested in actionable insights. This dissertation offers four kinds of advice related to receiving government support. It highlights the need for firms and policymakers to pay attention to the fact that the benefits of export assistance programs are not linear and straightforward. Insight regarding the interactions and conditions when different support treatments are effective will make firms more knowledgeable about when to use such tools in their internationalization strategies. This advice is especially valuable for SMEs wanting to internationalize since they normally have fewer resources.

First, essay #1 dealt with perhaps the most frequently asked question: which type of government export support is the most effective? Setting aside the timing nuances described in section 5.3, I concluded that the three types of support should be ranked in the following order: support for the establishment of export plans, participation in ministerial VIP visits, and support for trade fair participation. The time frame does, however, play a role as the effects may not appear immediately subsequent to the support and may build and fade over time at varying rates. In my empirical setting, for example, the impact of trade fairs peaked at
t+3 years after receiving the support; the significance of the positive effect of ministerial VIP visits peaked at t+1 years. These results confirmed findings in earlier studies, notably on the positive impact of strategic export planning on export performance (e.g. Chen, Sousa & He, 2016; Leonidou, Katsikeas & Samiee, 2002; Samiee & Chirapanda, 2019). The results are also in line with Wilkinson & Brouthers (2006) who did not expect significant immediate benefits from trade missions due to their focus on long-term relations and Nitsch (2007) who found an immediate but declining effect for state visits.

Second, essay #1 also investigated the effects of the order of implementation of the different kinds of support. To my knowledge this is the first study of this kind. By looking at firms receiving a combination of support measures, I concluded that the various instruments of government support are noncommutative, and the order or receiving the particular type of support can drive the combined effect. In particular, there are benefits from receiving multiple support mechanisms and that exports are best facilitated by firms first receiving support to attend a trade fair, then developing an export plan; and finally participating in a ministerial visit abroad. This order, confirmed by validation interviews with senior policymakers, enables firms to set up stepwise methodological plans for obtaining export support in order to facilitate the success of internationalization.

Third, in essay #2, I demonstrated the role of innovation and indicated that government support need not be aimed directly at export activities to improve export performance. In a Chinese sample of innovative firms, I found that innovativeness acts as a mediator in the relationship between government support for R&D activities and export intensity via full mediation (Baron & Kenny, 1986) or indirect-only mediation (Zhao, Lynch & Chen, 2010), meaning that there is no direct link between the two end points. This finding is important for firms seeking to internationalize as government support for R&D can indeed be instrumental but only if innovativeness is nurtured in the intermediate phase of the relationship.

Fourth, in essay #2, I also emphasized the role of reinforcing behaviors with the correct organizational motivators in each step of the mediated relationship. There has been much debate in the literature as to whether intrinsic or extrinsic motivators facilitate motivation better and whether the presence of an extrinsic motivator could hurt the effectiveness of an intrinsic motivator (Gerhart & Fang, 2015). As Kuvaas, Buch, Weibel, Dysvik & Nerstad (2017, p. 245) state, “…there is an ongoing and somewhat politicized debate about whether these two types of motivation both have positive effects or whether they relate negatively and have differential effects.” I found that extrinsic motivation offered
via bonus systems augments the innovativeness derived from government support to R&D, and that intrinsic motivation, measured by employee suggestion, facilitates the relationship between innovativeness and export intensity. The above resonates with Von Krogh’s (1998) distinction between high-care organizational relationships in knowledge creation and the literature on services (as sales are commonly supported by employee input). The lack of impact of financial incentives can be explained by the complexity of export sales, as incremental progress is evident only to sales personnel directly responsible for export contracts and not to most employees. These observations are useful when planning motivation schemes in firms seeking to improve either their innovativeness or exports as different organizational motivators play a role in the particular phase of firm development.

6.4 Policymaker Implications

The primary beneficiary of this dissertation may indeed be policymakers as they are responsible for the design of export support measures. None of the theoretical contributions listed in 6.3 are common knowledge among policymakers and increased awareness of these aspects has the potential to significantly increase the efficacy of government support.

The fundamental question for policymakers is where to allocate budget for support and which firms should receive it. This is a horizontal question tackled in all three essays of the dissertation. The answer is context-dependent, as it is discussed in essay #3, which deals with the evolutionary buildup of support agencies and national economies. Nevertheless, essay #1 provided some answers regarding this issue by indicating the strength of the impact of three types of government support, when to expect positive effects, and how to structure the lifecycle of export services offered to firms. Essay #2 also indicated an important point – that the precise target of governments may not be important if the selected firms have properly set up the intermediate steps and organizational motivators. Although this is not easy for government agencies to verify ex-ante, a proper diagnostics questionnaire that takes these aspects into account can increase decision accuracy.

Finally, essay #3 emphasized the importance of acknowledging that there are no perfect solutions as every support program, by default, requires the right balance between type 1 (false positive) and type 2 (false negative) errors in decisions. Government support programs should not be about spending the entire available budget but instead about consciously choosing whether it is appropriate to err towards greater generosity or stinginess. This depends on the given country’s level of economic development, the focus activity of the support measure, and the absorptive capacity of the economy to put the resources to
beneficial use. However, the idea of careful planning also collides with the general goal of business lobbies to seek the most generous business support budgets possible.

6.5 Limitations and Suggestions for Future Research

As always with empirical studies, their main limitation is that they only explore specific data from specific contexts. Hence their generalizability is low. I do not claim universal applicability but instead point out additional aspects that play a role in export performance advanced with government support, and instead make a call for more research on such aspects. I encourage future researchers to explore similar aspects in other contexts as well as other support mechanisms, mediators, and moderators that may enable development of holistic and coherent theoretical frameworks. Furthermore, I present issues in support instrument design (e.g. timing and a balance between type 1 and type 2 errors) that are likely to play a major role in export effectiveness; these should at least be acknowledged in empirical research, if not studied in detail. I demonstrate that research on export support has suggested that different types of services are more suitable for firms in various stages of internationalization. However, as theoretical frameworks of firm internationalization make little reference to export support studies, there is ample space to develop practical decision tools for firms and policymakers that are grounded in theory. Cooperation between theoretical development and practical application should eventually lead to greater awareness and recognition of government supported activities in internationalization strategies.

Future research will, to a large extent, depend on data availability. Ideally, the improved theoretical frameworks should be grounded in multi-country analyses that establish robust results across many contexts. However, I admit that this is challenging because of the differing conditions and designs of support measures between countries, which are the primary reasons why empirical research still explores single-country standalone support measures and does not place them in the wider international context of similar support measures. The available studies, which compare countries (e.g. Lederman, Olarreaga & Payton, 2010) rely on macroeconomic data to measure impacts and there is rarely any consideration of firm-level effects, which are crucial for assuring that government support measures have impact. Completely new granular datasets would therefore have to be established to explore these issues in sufficient detail. Furthermore, there is a challenge in dealing with the delay in impact, which I have addressed in essay #1. In a research context where results appear after a time lag, consistent longitudinal data collection must be set up to measure the impact regularly. This primary data collection method would be expensive but
the problem with secondary data collection is that it is limited to data collected for other purposes.

Substantively different datasets would also be required to study decision accuracy and type 1 and type 2 errors in allocating government support. The longitudinal datasets should follow the development of firms that applied for government support but did not receive it as well as those with a “score” marginally high enough for acceptance or that should have been rejected on other objective grounds. Although in some other contexts, for example in decision-making by academic journals (Bornmann & Daniel, 2009), alternative datasets consisting of type 1 and type 2 errors have been successfully created, this is likely to be trickier in the business decision context. Nonetheless, defining a counterfactual scenario is also critical in establishing the validity of the sample. In particular, observation of the progress of type 2 error firms, which did not receive support, may require in-depth qualitative studies. If this knowledge is added to the arsenal of routines combined with the tools of the export support agencies and policymakers, one could be assured that the government approach to business development services, offered via public funding, would reach a higher level of sophistication and effectiveness than exists today.

REFERENCES


Businesses and governments are inextricably connected and in the competitive global marketplace, governments support domestic enterprises in their pursuit to enter and grow in foreign markets. The question of whether or to what extent the support is effective is subject to debate. This dissertation asserts that the simple yes or no question regarding the usefulness of export support is an inadequately posed research question as it does not delve into the underlying dynamics and thus does not reveal the complete picture. The three dissertation essays examine nuances of government export support previously not discussed in the literature and the main body of the dissertation places the essays in the context of the wider economy and the literature on firm internationalization. Consequently, the dissertation expands on the theoretical understanding of the contextual factors at play. If the various relevant aspects are taken into account at the development and design stages of government support programs, the resulting support instruments will have a greater impact on the achievement of export and internationalization goals.