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Reflections on Choosing the Appropriate Level of Abstraction in Social Science Research

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ABSTRACT Although researchers often do it subconsciously, every explanation involves choosing a level of abstraction at which the argument proceeds. The dominant North American style of research in Organization Theory, Strategy, and International Business encourages researchers to frame their explanations at the highest level of abstraction where country-level contextual factors are suppressed or ignored. Yet to provide powerful explanations for recent developments in China, researchers are drawn to a greater level of context specificity. This tension is evident in the Child and Marinova (2014) paper. One way to reduce the tension is to identify general causal mechanisms that combine in different ways to produce different results depending on context. This research strategy is more effective than seeking invariant, general patterns of development across all times and places.

KEYWORDS choosing level of abstraction, philosophy of social science, research design, research on industries, research on firms

关于在社会科学研究中选择适当的抽象水平的反思

摘要

尽管研究者都是潜意识而为之，他们在论述解释问题时都进行了不同程度的抽象。组织理论、战略和国际贸易中主流的北美研究范式，都鼓励研究者最大程度地抽象他们的论述，与此同时却压制或忽略了国家层面的情境因素的影响。但是为了充分地解释中国近期的发展，研究者都执着于高水平的情境特性。这种矛盾体现在Child和Marinova（2014）的文章中。减少这种矛盾的一种方法是发现一些普遍的因果机制，采用不同的方式结合这些机制，从而根据情境产生不同的结果。这种研究策略比寻求不随时间和地点变化的、普遍的发展模式更为有效。

关键词：选择抽象的水平，社会科学的哲学，研究设计，行业研究，企业研究

INTRODUCTION

The beauty of science is that it takes what are seemingly different objects, phenomena, or events and reduces them to something similar. The more general

and simple scientific statements are, the more they dazzle the human mind. Consider Newton's second law of motion stating that the force (F) on an object is a function of its mass (m) and its acceleration (a), leading to the simple formula F = m*a. It is formulated to apply to all places and all times. Inspired by this idea of science, management scholars – just as other social scientists – are drawn to formulate abstract theoretical statements that apply universally at all places and all times. As a paradigm, this universalist ideal pressures scholars to seek generalizability often at the expense of insightful knowledge. In sociology, Talcott Parsons is a prominent example of the quest to formulate a general theory that tried to encompass all social action (Parsons, 1937). Many sociologists from the 1940s onward started to realize, however, that when theories in sociology are formulated at the most abstract level possible, rather than becoming more powerful, they often lose explanatory power. For this reason, Robert Merton (1949: 42) advocated creating 'middle range theories' that lie '*between the nomothetic and the idiothetic, between the general and the altogether particular, between generalizing sociological theory and historicism*'.

My first step in this essay is to argue that the 'middle range' invoked by Merton is a very wide range, requiring scholars to make a decision whether their explanations will lie closer to the *idiothetic* (the singular) or *nomothetic* (the all-encompassing, general) end. Building on the work of Stinchcombe (1978) and Tilly (2008), I next argue that good social theory with explanatory power is developed by paying close attention to the details of contexts. This means that fruitful theorizing is initially much closer to the idiographic end of the spectrum. Having set the stage, I will then comment on the stimulating paper by Child and Marinova (2014) in light of the preceding methodological discussion. In my reflection on Child and Marinova (2014), I propose that China-based scholars and scholars working on China need to carefully select the appropriate level of abstraction. The chief aim of my essay is to persuade scholars who research China that even if the ultimate goal is to find general concepts, we develop better theoretical knowledge when our theoretical efforts are deeply informed by context, and when our concepts have proven to work well in a specific context. Stinchcombe (1978: 21), reflecting on decades of work in sociology, makes this point well: 'Far from it being the case that the most powerful general theorists ignore details, the precise opposite is true. Social theory without attention to detail is wind; the classes it invents are vacuous, and nothing interesting follows from the fact that *A* and *B* belong to the class'.

Before I begin, let me make one disclaimer. This essay is written based on the experience of a 'macro scholar' mainly concerned with the development of firms, institutions, and countries. I leave to our more micro colleagues to decide whether my arguments are also valid at the level of individual human behaviour.

CHOOSING THE APPROPRIATE LEVEL OF ABSTRACTION

Even if we already agree with Merton that as social scientists we should be mainly constructing theories of the middle range, in every piece of research it is still necessary to make a decision about the precise level of generality at which we want to construct an explanation. The middle range between the *nomothetic* and the *idiothetic* end of the spectrum is wide. Let me offer an illustration of this point. Let's say we want to develop a theory of firm behaviour. Let us assume in this thought experiment that our universe is made up of 100 firms (F1 to F100) and five countries (C1 to C5). Each country has the same number of firms, which means that each country has 20 firms. If our theory is formulated at the most general level of abstraction, it will apply to all 100 firms. At the other extreme, if the behaviour of each firm is completely distinct from the behaviour of any other firm, that is, each firm is entirely idiosyncratic, we would need 100 distinct explanations for the behaviour of our 100 firms. A widely shared definition of science sees it as an enterprise trying to abstract from the particular and generalize. A completely general statement would apply to 100 firms, a completely idiothetic statement would apply to only one firm and thus not amount to 'science' on the aforementioned definition. But notice that even if we could only find commonality among two of the 100 firms, we would have still engaged in abstraction and generalization. Developing a generalization across two out of 100 firms is to engage in a scientific process. The key point I want to make here is that scientific statements (or theories if you will) in this particular thought experiment could apply to as few as two firms and as many as 100 firms.

Scholars comparing two or more countries have repeatedly discovered that national differences in economic development, institutions, and culture have a strong influence on firm behaviour (Hall & Soskice, 2001). This means a powerful theory explaining the behaviour of 20 firms in one country may not apply well to the other 80 firms in the other four countries. As mentioned before, science does not require one to construct theories that apply to all 100 firms. Too often scholars fall into the trap of thinking that one has to formulate a general theory at the outset, which often requires one to ignore the most interesting causal factors that drive the behaviour of firms in a particular country. The result is that little understanding is gained. If one realizes, however, that science even resides in developing generalizations for a subset of firms, one will see clearly the fruitfulness of first developing generalizations that apply to a smaller set of firms (e.g., to 20 firms from one country) before examining whether the generalization holds for a larger set of firms or even the entire universe of firms.

To summarize, any researcher in this thought experiment is forced to decide whether the theoretical statement will apply to two or three or 100 firms. Because of the universalist ideal in much of macro management research, scholars are typically inclined to formulate their theoretical statements in the most general way,

implying that they would apply to the entire universe of firms (100 in our thought experiment) even if they only studied a small sample of firms in just one country (I have also been guilty of this!). While theoretical statements that are formulated to apply to all firms at all times have the appeal that they seem to be in the same league as achievements in the physical sciences made by people like Newton, they typically sacrifice precision and often do not increase our understanding. In short, the power to explain and illuminate firm behaviour may reside in choosing a level of generality that is much smaller than the entire universe of firms. Given the differences between countries, one may have a much more powerful and robust theoretical statement if one initially restricts the scope of the scientific claim to apply to the context from which the cases are drawn. Let me turn to the work of Stinchcombe (1978) to articulate the methodological reason why this is so.

Stinchcombe's (1978) key argument is that powerful theoretical concepts are not developed by initially examining a great number of cases (i.e., large sample quantitative studies) but by examining a few cases in detail, trying to build deep analogies between these cases. Stinchcombe (1978) explains that deep analogies are constructed by establishing that a great many statements true of case A are also true of case B. These deep analogies amount to a generalization across the cases, giving rise to general concepts that are not tied to a specific case. The more these analogous statements are of an important causal character, the more scientifically important the resulting concepts are. This leads Stinchcombe to a conclusion that may be surprising:

> But if conceptual profundity depends on the deep building of analogies from one case to another, we are likely to find good theory in exactly the opposite place from where we have been taught to expect it. For it is likely to be those scholars who attempt to give a causal interpretation of a particular case who will be led to penetrate deeper analogies between cases. (21–22)

Stinchcombe suggests that the typical objections to case studies, namely that they are not representative, is misplaced when it comes to the development rather than the testing of theories that are already well-advanced. Theoretical advancement comes from building up generalizations case by case, ensuring that the generalizations hold across many details of the cases and further our understanding.

REFLECTIONS ON CHILD AND MARINOVA

This concept of how powerful theoretical statements are developed has profound implications for research on the development and behaviour of firms and industries in China. Instead of assuming that theoretical statements about firms developed for other countries and/or for the different stages of development also hold in China, it is more productive to build up theoretical statements based on detailed

studies of Chinese firms. At a later stage one can examine whether these theoretical statements can be generalized across different countries. Reading the paper by Child and Marinova (2014), I think that the authors on one level agree with this view of how effective theory is developed. Yet on another level, they seem to suggest that good theories should be formulated at the outset at the highest level of generality, ensuring that they apply everywhere and at all times.

Let me first offer evidence that Child and Marinova (2014) agree with the idea that powerful theory comes from understanding details of a contextual setting. With the title of their paper, *The Role of Contextual Combinations in the Globalization of Chinese Firms*, the authors seem to announce that the purpose of their paper is to construct a theory that can explain the globabilization of Chinese firms and not firms in general. As one reads the paper, it becomes clear that the empirical data from which the conclusions are drawn are exclusively Chinese. Initially, the authors are careful to emphasize that their framework is tailor made to explain patterns of the outward foreign direct investment (OFDI) of Chinese firms that cannot be explained by the existing theories of foreign direct investment (FDI). They announce in their opening pages:

> It is our aim to propose a framework that develops this analysis and also to indicate how it can enhance our understanding of the advantages and disadvantages attending Chinese OFDI, as well as the contingent adjustments that foreign investing Chinese firms may have to make. (Child & Marinova, 2014: 349)

In the next sentence, they speculate that their framework generalizes to contexts that are similar to China:

> We believe that such a framework could have wider relevance, especially for OFDI from other emerging economies characterized by strong government intervention. (Child & Marinova, 2014: 349)

But on the next page they make a move so common in the management literature, suggesting that the framework applies to all countries and at all times.

> While we now develop the argument with specific reference to China, we also suggest that it can be applied more generally to the implementation of OFDI from any country. (Child & Marinova, 2014: 350)

This statement seems to lend support to the notion that only when a framework explaining the performance of OFDI can in principle be applied to all firms in all countries (all 100 firms in our earlier thought experiment) have we engaged in good scientific work. This reading gains even more support by the authors' graphical respresentation of their key argument in Figure 1, which is clearly not limited to China or similar countries, but suggests that it applies to any country in the world.

In my analysis of Child and Marinova's paper, I find tension regarding the level of generality of their interesting theoretical framework that tries to overcome the limitations of previous works on OFDI. At the outset, the authors select China and perhaps countries with a similar level of government intervention and a similar state of development as the domain of their framework. Yet when they articulate their theoretical framework, it is clearly meant to apply to all countries. Consistent with my earlier discussion on how we construct powerful theory, I find the paper by Child and Marinova most compelling when it stays at intermediate levels of generality – when their paper is about China and not about OFDI at all times and/or in all places. After all, their empirical arena is Chinese firms. Their framework is not informed by evidence on firms from other countries engaged in OFDI.

At its core, the Child and Marinova (2014) paper attempts to explain why Chinese firms are more successful in making FDIs in some countries than in others. Reading the paper closely also makes it clear that their explanation does not work well unless the analysis becomes even more specific and recognizes in theoretical picture that there are distinct types of Chinese firms: even though one may not need to bring collectively owned enterprises (COEs) into the analysis, it is certainly necessary to distinguish between state-owned enterprises (SOEs) and private firms. Child and Marinova (2014) report that most OFDI (68%) has been carried out by SOEs and not private or collective firms. Furthermore, we learn that SOEs are the primary beneficiary of government policies facilitating OFDI, leading the authors to write that 'The relevance of home context for Chinese OFDI is therefore conditional on the ownership of the internationalizing firm' (352). This implies that, in their view, the focal causal mechanism explaining the differential success of OFDI by Chinese firms (*the relative congruence of home and host country context*) operates in the case of SOEs but not in the case of private firms or at least very weakly in the case private firms, as they later suggest.

I find Child and Marinova's (2014) paper richly stimulating when it is explaining concrete behaviour and differences in the performance of Chinese firms, differentiating between SOEs and private firms. In my view, the paper would have been even more compelling if the distinction between SOEs and private firms had been explicitly incorporated in the diagrammatic summary of their key argument (Fig. 1). This would have made clearer that the most productive next step in the line of work started with the Child and Marinova (2014) paper is not to try to test to what extent their framework applies in all countries. I suggest that the paper should inspire us to develop a deeper understanding of the causal processes that are driving and transforming the patterns of Chinese OFDI before we try to ascertain how well conceptual machinery works in other countries.

Although Child is clearly sympathetic to evolutionist arguments, having recently edited an entire volume on organization evolution (Child, 2012), the framework articulated in the 2014 paper paints a rather static picture and seemingly generalizes across all time. This means it makes no differentiation

between China in 1978, China in the 1990s, and China during the past 15 years. (I am fully aware that in one paper one cannot do everything and hence I am talking here about the next steps as opposed to suggesting that the authors should have done all of this in the one paper.) Many things have changed over the past 35 years in the Chinese economy. For one, the relative importance of SOEs in the economy has changed profoundly as a response to letting private firms compete in many sectors of the economy. Private firms by 2007 already accounted for more than two thirds of value added (Redding & Witt, 2007: Fig 7.2). This means that the share of OFDI made by SOEs is likely to have declined over the years and is likely to decline much further as private firms make more and more OFDI. It would be useful to incorporate additional causal mechanisms into the Child and Marinova framework that can account for these changes.

It is also likely that not only Chinese firms will build up their capabilities to make OFDI successfully (this is a key idea in Child and Marinova's framework). The Chinese central state is also likely to have learned some lessons about how to help Chinese firms to be successful in foreign markets. Even if the state in the strict sense of the word did not learn to become more effective, I suspect that their policies would have changed over the years as the state gained experience with the existing policies to support OFDI. As the role of SOEs diminishes and private firms gain an ever larger share of the Chinese economy, it is likely that the interventionist state is going to change its policies, maybe allowing private firms to benefit more from its actions. There are many opportunities to build on the stimulating Child and Marinova paper. I will focus here on the opportunity to make the framework more dynamic, explicitly theorizing about changes over time.

We evolutionists working in the Nelson and Winter (1982) tradition believe that the greatest task for theory is to explain change over time. From that perspective, the greatest current task regarding the Chinese economy is to explain the amazing transformations that we have witnessed since 1978. Explaining change over time is often handled very badly by simply trying to add variables for context in the standard regression framework that presumes a general linear reality, in which one variable in principle could have caused the phenomenon alone (see Delbridge and Fiss, 2013: 328, who explain this point well). At the most abstract level, scholars in the evolutionary tradition are using a combination of three general causal mechanisms (variation, selection, retention) as the core engine of the theoretical explanations. Yet they are also cognizant that the mechanisms lead to different outcomes at different times and places. In my work on the synthetic dye industry (Murmann, 2013), for example, I explain the differences in performance of the five major producing countries during the second half of the 19th century by applying the same causal mechanisms. Following the methodology of Stinchcombe (1978) of searching for deep analogies and disanalogies, I develop more detailed mechanisms to explain why the links between industry and aca-

demia are stronger in the case of Germany than in four other countries in this particular industry. Furthermore, evolutionists doing empirical work also realize that we typically need to identify additional 'middle range' causal mechanisms to explain a particular phenomenon well. To account for the co-evolution of the academic discipline of chemistry and the synthetic dye industry in five different countries from 1857 to 1914, for example, I identify lobbying, exchange of personnel, and commercial ties as three key linking processes that operated at different strength in different countries and hence explain why the outcomes across the countries are different. I do not claim that these causal mechanisms would be the only ones operating in the future.

Charles Tilly (2008) is perhaps the person who did the most to articulate – for our neighbouring disciplines of sociology and political science – the view that to explain social processes is to identify the different causal mechanisms that collectively and in different combinations account for how the social world is changing, as opposed to looking for invariant patterns (see particularly Chapters 7 and 8). Tilly (2008: 88) explains:

> Like the causal mechanisms to which geologists and ecologists appeal, such causal mechanisms appear in different combinations and sequences, with different weights, in concrete historical situations (Stinchcombe, 1978). No more than any geologist imagines all mountains to form as minor variants on the same model does an intelligent analyst of state structure confine the military-state relation to a single invariant pattern; like a wise geologist, she shows how widely-applicable causes concatenate into substantially different outcomes.

Tilly (2008) explicitly refers to Stinchcombe's work to highlight that one can only find robust general causal processes by doing detailed work on concrete instances of the social process, building up generality one step at a time.

CONCLUSION

Macro scholars must make a choice about the level of generality on which their theoretical explanations are to proceed. It is a misunderstanding of science to believe that only when theoretical statements are framed at the most general level of abstraction (e.g., applying to firms at all times and everywhere) are we creating the most powerful statements. To advance our understanding of Chinese firms and the development of the Chinese economy our theoretical statements first and foremost need to be able to enhance our understanding of the Chinese firms and hence proceed at a level of abstraction where key contextual factors that make Chinese firms different from firms in other parts of the world are carefully addressed in the explanations. Furthermore, we must identify causal mechanisms that can handle the Chinese-specific contextual factors of the phenomenon of

interest as well as possible changes in those contextual factors. Since China accounts for 20 percent of the world's population, a rough estimate is that about 20 percent of all firms in the world are now Chinese firms. I contend that research that can deepen our understanding of 20 percent of all firms in the world is a lot better than research that makes trivial contributions to our understanding of all firms in the world.

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