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Performing comparative advantage: The case of the global coffee business

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No. 167

**Performing Comparative Advantage:
The Case of the Global Coffee Business**

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Abstract

We posit that comparative advantage is discovered via alternative transactional regimes of trading. Transactional regimes are performative, based on different forms of embedded agency. The theory is applied on a study of Brazilian coffee business which manifests the increasing importance of specialty coffee. Innovations in the transactional regime have created new forms of agency which triggered new ways to produce coffee and to activate the hidden potential of variety in consumer tastes. Comparative advantage, though still driven by endowments with natural resources, relates with very different product characteristics and forms of market organization. This constitutes the performativity of comparative advantage.

Key words: comparative advantage; trading; transactional regimes; performativity; coffee.

JEL classification: B52, F10, F14, O10

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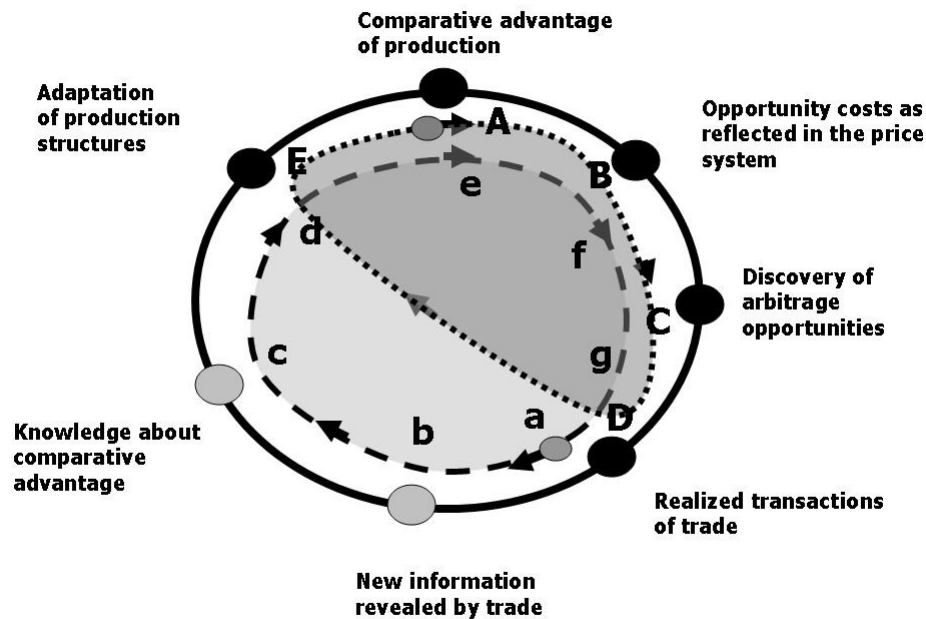
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1. Introduction: Bringing back trading into the theory of trade

The theory of comparative advantage continues to be the cornerstone of the theory of international trade, in spite of many competing approaches and substantial modifications. The reason is straightforward, as comparative advantage is just an application of opportunity costs (fundamental to economic science) in the context of international trade. However, comparative advantage relates to the structure of production, but it is not a theory of *trading*. Almost all mainstream theories of trade only employ simple and abstract ideas about the role of trading, which mostly is seen as price arbitrage (compare e.g. (Feenstra, 2004: 371) who flatly states in the final chapter of his advanced textbook: “*Despite the fact that this book is about international trade, we have so far not introduced any role for traders.*”).

The role of trading has received more attention in the context of the analysis of trade costs, which has been a vibrant area of research in the past two decades (Anderson & van Wincoop, 2004), especially in the context of border effects in trade (beginning with McCallum (1995) and in testing the law of one price internationally (seminally, Engel and Rogers (1998)). However, in this case trade costs are just treated as exogenous to the trade model. Researchers have noticed that this is a major flaw, as it hides the fact that those costs are incurred because there is a benefit: making trade transactions possible. Impediments to transactions are ubiquitous, so that actions are necessary to overcome those obstacles. We call these actions trade-enabling transactions, TETs. Evidently, in international trade, both are necessary: One is comparative advantage in production, another is the complementary transaction which enables the trade transaction. There is also comparative advantage in trade transactions. For example, a producer might have to depend on the importer to be able to trade, because it has not the capability to trade. This distinction is of tremendous economic significance: Today, a substantial share of Chinese exports is channeled via multinational retailers, which offer a wide range of complementary TETs such as quality control, branding or advertising. Accordingly, a large part of value-added accrues to the importer, but not to the exporting producer (Head, Ran, & Swenson, 2010).

But trading has another role to play: the discovery of comparative advantage. In figure 1, we confront the established view with an alternative view that we develop in this paper. The standard model is depicted in the circle with capital letters. Comparative advantage is given (A) and is reflected in opportunity costs (B), which translate in international price differences that trigger trading activities as price arbitrage. These activities send signals to producers who adapt the structure of production, which then reflects comparative advantage after all adaptations have been made, i.e. in equilibrium. The alternative view starts with realized trade activities (a) which are necessary to reveal the information about potential comparative advantages (b). Without trade, knowledge about profitable specialization patterns cannot emerge at all. Based on realized trade activities, production adapts, which triggers price changes. Price changes influence trading activities, and so forth. In other words, comparative advantage is not the cause of trade, but is discovered by trade, and only in a world without further change, comparative advantage emerges as a property of equilibrium states.

Figure 1: Two approaches to the role of trading in comparative advantage

The alternative view reflects one simple fact about tests of trade theory (WTO, 2008: 33f). Even though the theory of comparative advantage is close to be evidentially true, it is extremely difficult to confirm it empirically, because that would require reference to a counterfactual state of autarchy (for one of the very few complete and confirming tests, see on 19th century Japan Bernhofen and Brown (2005)). In our view, these difficulties simply represent the fact that comparative advantage is endogenous to international *trading*.

In this paper, we propose a radical elaboration of this insight. We argue that in international trade, comparative advantage is *performed*. We draw on two strands of thought in recent economic sociology. One is the organizational ecology literature, the other is the literature on performativity in the narrow sense. This radically new view is motivated by a case study on the global coffee trade that we are going to present.

For long, coffee has been a commodity that played an almost defining role in international trade between developing and industrial countries. About 75 million people in the developing world are involved in coffee cultivation and business. With a volume of traded green coffee of about 22 billion US\$ in 2004 (Pendergrast, 2009), coffee is claimed to be “the second most valuable commodity exported by developing countries” (Talbot, 2004: 50). It fits the classical Ricardian example of wine and cloth. Developing countries with comparative advantages in growing coffee specialized accordingly, and most coffee was consumed in industrial countries. This trade was managed via commodity exchanges and was dominated by an oligopoly of roasters which connected supply and demand. This regime was the object of much criticism in the recurrent debates about the perceived unequal distribution of the gains from trade, as farmers typically received a very low share in the entire value added of the coffee business, and were facing the fluctuations of coffee prices (Daviron & Ponte, 2005: 205). However, in

the recent two decades, substantial changes took place in the global coffee business which led towards a bifurcation into a commoditized regime and a market for specialty coffee.

It results very difficult to quantify the rise of specialty coffee. For one the term is ambiguous, including single estate, gourmet, sustainable, quality decaf, soluble and others, making the quantification of the different types very laborious. What we know is: The overall market for quality coffee was estimated to be in 2004 around 9-12% in terms of volume in the most developed markets. This number refers to ‘differentiated coffee’ that include specialty, fair trade, organic, prepared (ready-to-drink), decaffeinated and some quality soluble. The financial volume is much higher. In the US, differentiated coffee is about 40% of the total coffee market (Lewin, Giovannucci, & Varangis, 2004: 116). A useful proxy measure is the number of outlets devoted to specialty coffee. In the US alone, including Starbucks, they have increased more or less exponentially from about 400-500 in 1989 to about 19000 in 2004 (Luttinger & Dicum, 2006: 155). The dynamics of the two sectors are increasingly different and seem on the verge of “*completely decoupling from one another*” (Luttinger & Dicum, 2006: 170).

The new de-commoditized regime manifests many different features, such as a much larger diversity of sorts of coffee beans, higher quality, a variety of intermediating organizations, some of which profess to be on the farmers’ side, and the emergence of ‘geography of food’ (Marsden & Arce, 1995; Murdoch, Marsden, & Banks, 2000). Considering this evolution from the viewpoint of comparative advantage, we cannot say that any of the standard determinants has changed, such as the climate and soil conditions or the availability of labour. There is also no particularly strong role of technological change. As we will show subsequently, the essential difference between the two regimes lies in two very different transactional regimes, i.e. the organization of *trading*.

We propose to analyze the shift from the commoditized to the de-commoditized regime as an innovation in ‘performing comparative advantage’. Consider the farmer in the first regime. The farmer had absolutely no idea about the potential demand for specialty coffee in the world. So, the knowledge about trade-relevant quality differences of beans were not existing. ‘Coffee’ was seen as an homogenous product, and the essential performing act was ‘mixing’. After growing the beans, all beans of a certain minimum quality were mixed, even across different countries of origin. So, ‘coffee’ became a commodity, and also the consumers were not aware of potential quality differences (though possibly complaining about bad taste and switching to substitutes). That is, the organization of the coffee trade even changed the underlying economic ontology.

This effect has been analyzed recently in terms of ‘performativity’: It means that markets are systems consisting of different transactional devices and governed by different conceptions of those markets, and the pattern of devices and concepts also determines how economic reality is constituted, in this case the ‘goods’ in question (landmark contributions are collected in Callon, Millo, & Muniesa (2007) and Mackenzie, Muniesa, & Siu (2007)). We propose to use the concept of ‘performativity’, because linguistic items play a central role. This corresponds to the organizational ecology literature, where we have famous cases that compare with the coffee case that we study, such as the emergence of micro-breweries in the United States (Carroll & Hannan, 2000: 65ff). This literature emphasizes the role of labels which intermediate between producers and consumers in the sense of a communicative process, where produ-

cers address the consumers as an audience (among others Hsu and Hannan (2005)). So, we link the two approaches in stating that the use of a label is a performative act, which depends on certain conditions to succeed. We argue that creating those conditions is the essential task of the entrepreneur who arranges new conceptualizations of markets and implements new transactional regimes.

This cross-disciplinary approach is directly related with the concept of capabilities in analyzing issues of development. Sen's notion of capability (Sen, 1999/1984); for a survey of recent developments, see Clark 2005), though originally developed in the context of welfare economics, relates with all factors that determine human agency. In this sense, performing comparative advantage presupposes certain capabilities of agents, which boil down to different sets of skills, knowledge, organizational resources or institutional settings. Capabilities relate with functioning, which, in our context, could be specified as successful participation in international trade. This perspective immediately reveals the fact that the endowment with particular resources of any kind does not suffice to generate the patterns of agency which are necessary to trading, given a certain context of global business. Agency is embedded into a set of enabling factors which leverage and enhance the capabilities of the individual, seen in isolation. Performing comparative advantage essentially depends on these contextualized capabilities. However, this also implies that observed realizations of comparative advantage in the world economy depend on the distribution and formation of capabilities to trade. The standard model of international trade is under-determined in this important respect.

The paper proceeds as follows. In section 2, we introduce the notion of performativity and relate it with our specification of the capability concept, the notion of 'trade enabling transactions'. We relate this with the current literature on the role of quality differences in international trade. In section 3, we present our case study on the Brazilian coffee business. We show how innovations in the organization of trading transformed the capabilities to trade on part of the Brazilian coffee growers, and how this relates to the discovery of new forms of competitiveness in the global coffee business. By this process, the 'de-commoditization' of coffee has been triggered, epitomized in strong coffee brands and a geography of quality differences. Section 4 concludes.

2. Theory: Enabling trade transactions to perform comparative advantage

2.1 Performativity

The notion of performativity has been borrowed from the philosophy of language and specifically, the theory of speech acts (for overviews, see Lycan (1999), Green 2009). A performative speech act constitutes a social fact, such as a promise. Promising something creates this obligation, or pronouncing a sentence implies the fact of guilt. When this concept was introduced into economic sociology, it mostly referred to economics as a science, especially in the context of financial markets (MacKenzie, 2006). Here, economics turns out to be performative as the propositions of economics also created social facts (such as pricing schemes for op-

tions) which did not exist before, and which changed the way how markets work. However, this focus on economic theory can be easily extended to include all conceptualizations of the economic process (Callon, 2007; Herrmann-Pillath, 2010). For example, when economic theory is used to create a system of transferable fishing quotas that establishes property rights in a highly mobile resource, this implies that the underlying economic theory (theory of property rights, auction theory etc.) becomes performative, but also, that the previous, non-scientific conceptualization was performative, too, so that the innovation is actually a shift between two different ways of how to perform fishing as an economic activity (Holm, 2007; Holm & Nielsen, 2007).

We propose to relate this approach with the recent advances in organizational ecology and demography, which have resulted into a theoretical framework in which linguistic entities play a similarly important role (for a comprehensive overview, see (Hannan, Pólos, & Carroll, 2007)). This approach has proven to be especially powerful to analyze the emergence of new industries or product groups, as in the aforementioned structural changes of the American beer industry. The central idea is that all economic activity takes place in front of audiences (customers, employees, banks etc.) who communicate about the economy. Communication involves classifications and categorizations, which in turn build on perceived similarities and dissimilarities among activities. These result into ‘labels’. So, for example, a label may emerge that classifies certain artisanal and small-scale producers of beer as a special subsegment of the industry. Labeling is essential to create identities which provide the foundation e.g. for decisions about credit. Those identities emerge from schematization which, in the example, results into a new conception of ‘microbreweries’ as an accepted and legitimate form of doing the beer business, with a particular set of organizational and quality characteristics. This ends up in an ‘organizational form’. Clearly, the concept of organizational form is a social fact in the sense of performativity. Thus, we can say that organizational forms result from performative actions in an audience which interacts with entrepreneurial agents in the economy.

This brief characterization of the two approaches suffices in our context. We posit that the conception of performativity can be extended by adding the organizational ecology perspective, which results into a focus on the role of linguistic entities, i.e. labels, in the construction of social facts in the economy. To this we add a second strand of thought in the literature of performativity, which emphasizes the role of techniques in ‘doing’ the economy. This is strongly influenced by actor-network theory (Latour, 2005) and complements the linguistic dimensions with the dimension of materiality, i.e. the use of artifacts. We can arrange those different views in one single framework by means of stating a distinction between cognition and action in performativity. On the one hand, performativity is driven by linguistically mediated cognition, i.e. ways how to perceive and conceive the economic process. On the other hand, performativity is shaped by capabilities to act, which are determined by a vast range of social and technological extensions and complements of the individually embodied capacities to act. In a sense, both aspects conflate, because linguistic entities could be also interpreted as ‘technologies’ that extend the reach of individually embodied capabilities. In organizational ecology, a new label allows entrepreneurs to take different actions, such as getting credit for expanding business. In the literature, this expansion of capabilities has been denoted by the term ‘agencement’ (Callon, 2008) which makes a distinction to the standard notion of an ‘agent’. This perspective fits into recent developments in cognitive sciences which emphasize the role of distributed or extended cognition (Hutchins, 1995; Sterelny, 2004) In a nutshell, agencement

refers to the fact that individual agency is an emergent property of interactions between individuals and the whole set of enabling structures which connect with them. We think that this notion is particularly important in the context of development studies, where the issue of human capacities, endowments and powers to act loom especially large in explaining success or failure in the global economy.

Indeed, the notion of agencement shows close resemblances with the Senian notion of agency, which focuses in the relation between functionings and capabilities. Callon (2008) offers an interesting analysis which starts out from the functional needs for an agent to be able to implement proper and successful actions in a particular environment. There are two principled alternatives to create the capabilities for proper functioning. One is to enhance the individual capabilities (what he calls ‘prosthesis’), the other is to change the environment in order to facilitate and leverage the capabilities of individuals (the ‘habilitation’). In the Senian analysis, this corresponds to different aspects of capabilities, such as knowledge and skills on the one hand, and social capital or institutionalized rights on the other hand. This conceptual convergence allows to design applications of the concept of performativity in the context of development. We argue that certain combinations of individual capabilities and their embedding factors lead towards specific forms of performing international trade, in which the realization and even discovery of comparative advantage essentially depends on the ways how actors pursue the activity of trading.

2.2 Performing international trade

We claim that the notion of performativity is essential to analyze the dynamics of international trade in two respects. Firstly, international trade always involves a labeling process (in the abstract and generic sense) in which product categorizations and quality perceptions are coordinated across producers and consumers in different countries. Secondly, international trade essentially relies on a vast range of enabling techniques, which make up the organization of trading. Both aspects have moved to the center of attention in mainstream trade theory recently. We regard this development as a major evidence for the value added of our alternative account.

In recent research on international trade, the role of quality differences and the corresponding demand side characteristics has received much attention (a precursor of this idea was Burenstam (1961), whose contribution, though recognized, stood apart from mainstream trade theory for long, see Krugman (1995:1262). Demand for quality depends on differences in tastes, but also differences in income. There is a number of empirical regularities which relate with this, such as the fact that richer countries consume higher proportions of high-quality goods, and at the same time also export higher proportions of high quality goods (Fajgelbaum, Grossman, & Helpman, 2009; Hummels & Klenow, 2005). On the other hand, the production of high-quality goods requires more advanced skills and technologies, such that there is also a correlation between the level of development and the capability to produce high-quality goods. Further, high quality goods also require higher inputs in complementary services, the provision of information etc., which also requires high-skilled inputs (Brambilla, 2010). Taking these observations together, the existence of quality differences results into strong directional effects in international trade, including the possible emergence of a hierarchical pattern,

which is supported by the effects of sheer size differences between less developed and developed countries. That means, a typical pattern in international trade is that high-quality goods are only be produced in developed countries, and that there are high barriers to entry for exporters from less developed countries into this high-value added sector (Murphy & Schleifer, 1997). These barriers to entry can result from both the lack of productive capabilities and the lack of skills in complementary activities.

From the perspective of organizational ecology, these approaches need to be supplemented by the view on the construction of quality differences via ‘labels’. In the established framework, this only pops up in the analysis of trade law, where the problem of ‘like products’ looms large (Mavroidis, 2001). However, this is a much more general problem, which is hidden in business practice, for example, in the challenge of international branding. However, the deeper issue lies in the substantial widening of audiences in international trade, which requires an extension of the semantic space for labels which identify qualities and related shared perceptions. As we shall see in our case study, what constitutes ‘coffee’ is by no means a trivial problem, and particular solutions have tremendous effects on market organization and process. In this context, the term ‘label’ does not only have a theoretical meaning, but a very practical one: Labels play an essential role in all processes of standardization, such as in labels used for organically grown food. From the perspective of the theory of performativity, a standardized label is not just a description of a physical item such as a coffee bean, but involves a set of social practices that stand behind the generation of the properties that are designated by the label, and all procedures that measure the correspondence between label and designated entity.

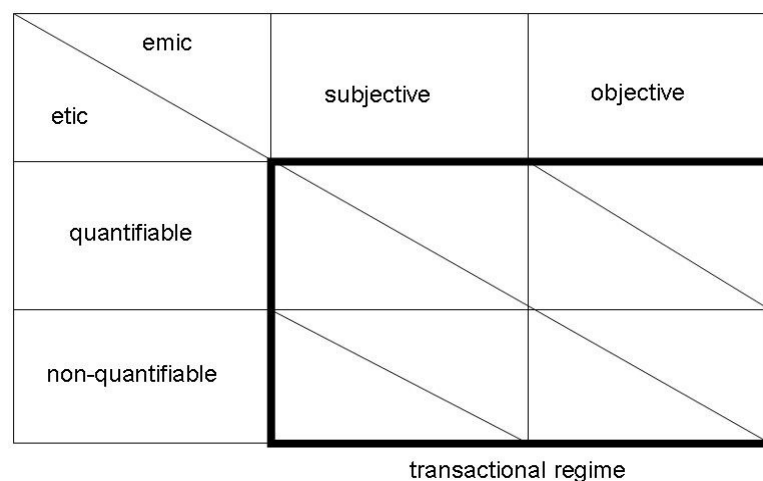
In international trade theory, the quality issue relates with the distribution of skills across different countries. This refers to capabilities to produce, but also, and even more so, with all complementary activities. We call all these activities trade-enabling transactions (TETs), which relate with the concept of agencement (compare (Herrmann-Pillath, 2001, 2006). Without being able to go into details here, TETs are activities that overcome resistances to trade of all possible kinds, such as linguistic differences, differences in taste or technological differences (Drysdale & Garnaut, 1993). The implicit assumption is that the large majority of all exporters start as domestic producers, so that their products are adapted to the domestic market (which in the empirics of international trade manifests in the ‘home market effect’, Krugman (1980)). The difference between the home market and the foreign markets results into trade resistances which are specific to international trade. A domestic producer needs to incur specific costs to overcome these resistances, which in mainstream models are mostly modeled as fixed cost effects (Melitz, 2003; Roberts & Tybout, 1997). But in fact, trade costs are endogenous to trading, with opposing forces, such as learning curve effects and economies of scale on the one hand, and increasing marginal costs of market penetration once exports increase (Arkolakis, 2008).

In our view, the nature of trade resistance needs to be analyzed in more detail in order to develop deeper insights into the nature of the capabilities that are necessary for producing TETs. Elsewhere (Andriani and Herrmann-Pillath 2011), we propose to distinguish between three different dimensions of trade resistances, on a most abstract and generic level:

- quantitative/non-quantitative: Whether properties relevant to the trade transaction can be measured or not,
- etic/emic: Whether properties of the trade transaction can be ascertained by an external observer commensurable across all possible observers, or whether they can be only ascertained by adopting the perspective of different participating observers, with limits to commensurability,
- subjective/objective: Whether properties of a trade transaction relate with the properties of the participating agents, or whether they relate with the transaction independent from those agents.

This results into a state space of trade resistances. A particular combination of the three dimensions characterizes a transactional regime.

Fig. 2: Dimensions of the state space of trade resistances



So, for example, as we shall see below in more detail, the transactional regime in the global coffee trade has been located in the upper right triangle for decades, and can be characterized as a ‘commoditized regime’. The quality of coffee was determined by characteristics that were easy to measure and quantify and had no relation with differences in consumer tastes (the emic dimension). This turned coffee into a commodity that could be traded via international exchanges (and, after all, into a homogenous drink without quality differences on the side of the consumer). This transactional regime related with a particular pattern of TETs, which were asymmetrically distributed across the farmers and the international roasters dominating the global coffee business. The farmers’ capabilities did not have to include any skills and knowledge related to matching production with varieties in consumer tastes, and were uncoupled from the trading activity at all, which was truncated to the delivery of the coffee beans to local domestic traders. The transactional regime of commoditization relates with a specific form of agencement, which did not create any incentives to change the production process, too. Thus,

the transactional regime also created a particular production system, which implied a particular actualization of comparative advantage.

All TETs relate with a particular kind of trade resistances, making up a transactional regime. But this is in fact a tricky issue in epistemic terms. Are trade resistances known to all participants? Not necessarily. For example, a potential exporter who shuns the risks of exporting may just have a very dim idea about the actual trade resistances. Further, even an exporter who trades may have only an idea about those trade resistances that it was able to deal with, given a certain transactional regime. This problem is particularly true for trade resistances that result from deficient knowledge about the demand side. This point is important to highlight the relevance of entrepreneurial action under uncertainty, which is central for the discovery of comparative advantage. Whereas in the arbitrage model of trading price differences is the only information that is relevant for entrepreneurial action, in the current approach the transactional regime determines capabilities of agents which include the capability to recognize and perceive market potential in all dimensions of product properties.

In our context, an important example for this is the long tail effect in market dynamics (Anderson 2006). We relate this with another concept borrowed from organizational ecology, namely resource partitioning and niches (Hannan, et al., 2007). Foreign demand can be seen as a resource over which different domestic and foreign producers compete. Quality differences are an important lever to partition this resource in a way as to maximize the number of niches carved out in market competition. However, this possible number of niches is not known to the competitors in advance (which is the essential difference between our approach and the imperfect competition approach to trade, where varieties on the demand side are common knowledge in equilibrium). Now, the long tail theory posits that in market dynamics, there are different possibilities in the distribution of properties on both the producer and the consumer side, which match with statistical distributions of qualities. These distributions are not known to the agents, but emerge from realized actions. The long tail theory posits that there is an alternative to the standard normal distribution. As long as the exporter assumes that there is a normal distribution behind observed qualities, it would assume that the realized market state centers on the most probable qualities, given determinants of the market process, so that outliers are of minor significance. Alternatively, the long tail theory assumes other distributions in which outliers can have a much higher probability. However, as long as the agents search in the narrow range around realized values, they might never hit those opportunities. The long tail theory argues that the expansion of transaction technologies reduces the risks to access those parts of the statistical distribution of properties and thereby to carve out new niches. Especially, fixed costs may result into obstacles in taking the corresponding entrepreneurial action.

In our context, this argument shows that TETs cannot simply be seen as tools how to overcome existing trade resistances which are known to everybody. In fact, the trade resistances might differ a lot across the long tail, and there are unknown probabilities how and when quality matches can happen. So, an existing transactional regime is also a phenomenon of distributed cognition, as it shapes the perception of trade resistances. In other words, given a transactional regime, agents can be trapped in a certain cognitive frames which does not even enable them to recognize the nature of trade resistances in unexplored domains. This is the precise meaning of ‘performing international trade’: Cognitive frames interact with funda-

mental determinants of comparative advantage to produce action patterns, contextualized via embedding organizations and institutions, that result into actualized comparative advantage.

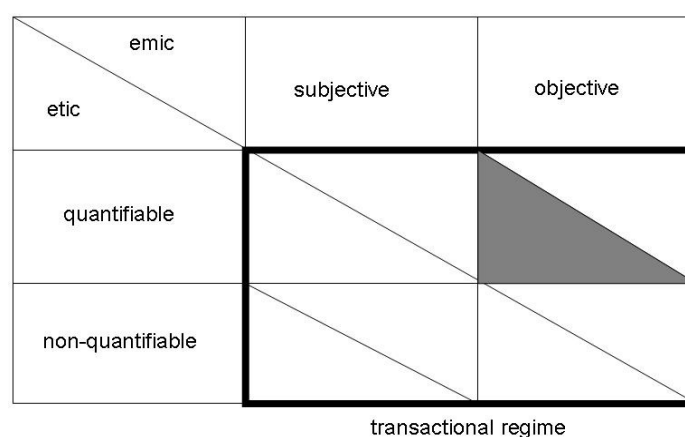
3. Case study: Transforming the Brazilian coffee business

We will now apply our conceptual framework on our case study, the transformation of the Brazilian coffee business led by one entrepreneur, Ernesto Illy (for a description and discussion of the case study methodology and the data, see Appendix 1). Illycaffè's entrepreneurial actions triggered the de-commoditization of a part of the Brazilian coffee sector and led to the emergence of a new transactional regime which has since coexisted with the commodity one. We argue that Illy launched a performative transformation in the sense that firstly, the coffee business and coffee were conceptualized very differently, and secondly, an entirely new transactional regime was created. The outcome of this performative transformation was to revolutionize the notion of agency in Brazilian coffee farming, in the sense of agencement. Brazilian farmers did not only perceive a fundamental change of their business, but also evolved new capabilities which changed their nature as agents in the global economy. Re-labeling coffee was an essential part of this innovation.

3.1 Commoditized transactional regime

In the commoditized regime, a peculiar transactional regime stood at its center. This was mainly built on two pillars, standardization and commodity exchanges, with the former being a precondition for the latter. This is because commodity exchanges presuppose the 'standardization' of a particular good: the good is stripped of its idiosyncratic features and turned into a homogenous entity about which information is easy to collect and properties are easy to ascertain. We can summarize the transactional regime relative to the state space of trade resistances (fig. 3).

Figure 3: The commoditized regime



The transactional regime focused on measurable, etic and objective properties of the transaction. The local origin of coffee beans did not matter (subjective), differences of tastes were not exploited (emic), and the approaches to measurement were quantitative to the highest possible degree. This regime lowered transaction costs of international trade and became the pillar of the growth and resilience of the global coffee business. Commoditization of Brazilian coffee started early with the emergence of standardized financial transactions and the Futures markets in New York. The corresponding standardization impacted on coffee quality, lacking differences in taste, which reflected an ‘average Brazilian bean’ (Pendergrast, 2001: 191).

The performative nature of this regime is evident from the prototypical action pattern, namely ‘mixing’. On different stages of the process, coffee beans were mixed, as long as they met the standards. Coffee transactions were and are still based on a scale describing 9 quality levels and the rules to define them (standards). Levels are based on number of defects that take into account essentially two aspects: cleanliness and absence of damage. The NICE defines all grades with relation to Grade N.7. Standards for tropical products are based on the process of homogenization that pays little or no attention to processability criteria and geographic origins (Daviron & Ponte, 2005). Product substitutability—which enables mixing—and ‘opacity’ between suppliers and consumers follow (Daviron & Vagneron, 2010). Mixed within regions, countries and even across countries, they ended up in the few multinational roasters, whose emergence was also dependent on this transactional regime. On the consumer side, quantity effects were dominant, that is lower prices triggered an expansion of coffee consumption, with no role for differences in taste and symbolic aspects of consumption. So, ‘coffee’ turned out to be a homogeneous physical entity destined for mass consumption.

In the context of development, most criticism directed at this regime pointed at two effects, namely the resulting distribution of gains from trade in favor of the global coffee industry and the weak position of farmers. Indeed, the regime was related with a particular form of farmers’ agency. Farmers had no transactional capabilities which could have matched with the organizational capacities of multinational traders and roasters. So, their role was reduced to producers who only focused on price (interestingly, consumers represent the mirror image). That is, coffee farming evolved into a scenario in which large numbers of atomistic farmers perceived themselves as directly confronted with the ‘global market’ (via the intermediation of national regulators), which was, effectively, the system of commodity exchanges. Farmers even lost capabilities in production or perceived no incentives to increase those capabilities, because there was no impact on the measured properties of beans. So, the commoditized regime went hand in hand with a deskilling process. One important effect of this regime was the delinking between production and consumption in the sense that producers had no information about the final consumers preferences and practices regarding coffee.

“Coffee growers [in Brazil] didn’t have any idea as to what happened to their produce. ... they even didn’t know what processes their beans would have undergone in the Brazilian value chain, such as washing, drying.”¹

Considering the regime from the viewpoint of comparative advantage, the system clearly exploited the special advantages of Brazilian farmers in growing coffee, along the lines of the classical Ricardian argument on wine and cloth. However, at the same time the realized tra-

¹ Furio Suggi Liverani (table 3)

ding activities worked as perceptual blinders regarding alternative ways how to exploit this comparative advantage. In this sense, comparative advantage was performed. This performance was essentially linked with a particular pattern of capabilities of the farmers, which left them in the position of a reduced level of agency, relative to other agents in the global coffee business. There would have been alternatives, which were not even discernible to the different agents in the system.

3.2 Launching de-commodization

The performative transformation of the Brazilian coffee business was enabled by the deregulation in the late 1980, which exposed farmers to increasing uncertainty about their business. *“When in 1990 the policy of homogeneous direction of Brazilian coffee was terminated we got all lost”*.²

This window of opportunity was exploited by the Italian company, Illycaffè, leader in espresso quality coffee, which entered the Brazilian coffee market in 1991. The situation of Brazilian coffee at the beginning of the 90s was dire. The *Gazeta Mercantil* (Brazilian *Financial Times*) wrote in 1993 *“Coffee throughout Brazil was all the same and in general it was a pretty bad drink”*³...Illycaffè’s initial motivation for changing business model was scarcity of quality coffee.

*“illycaffè imports coffee from Brazil since 75 years. Until 1991 illycaffè got coffee from exporters. The problem was to find good quality coffee. Before 1991 out of 40-50 samples they could accept only one.”*⁴

Deregulation of coffee markets enabled illycaffè to approach sourcing scarcity differently. Illy strategy went through two phases: the initial phase was driven by the need to intercept the long tail of quality beans before they got mixed up. illycaffè decided to try a radically different procurement strategy: they bypassed the coffee supply chain (disintermediation) and launched an Award for the best coffee beans to interface directly a base of individual farmers that until then had had no contact with roasters and no knowledge of final market demand.

*“Illy program bypassed all the chain and connected directly the roaster with the producer. So, not only did Illy pay a much higher price for coffee, but they also started a new concept in buying and selling coffee.”*⁵

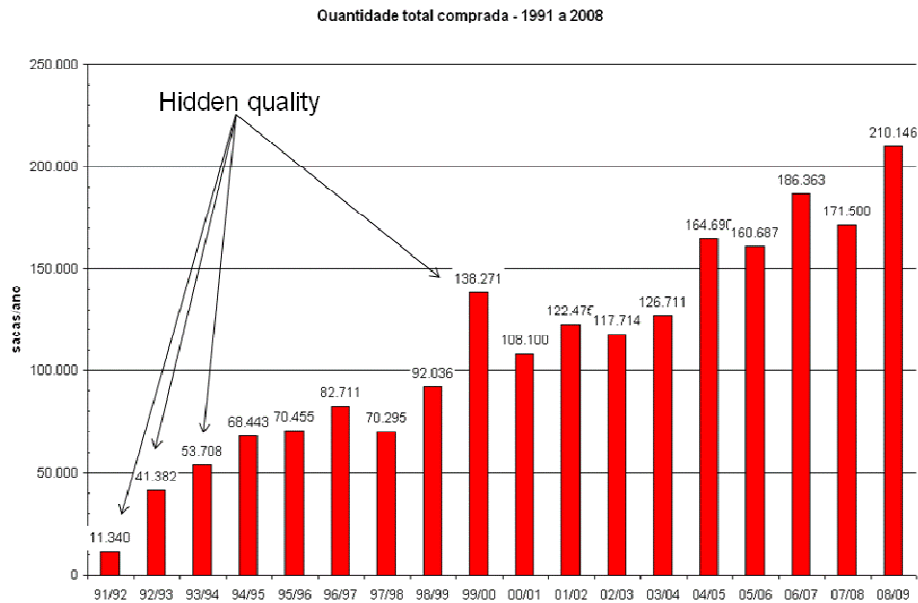
Figure 4 shows aggregated coffee quantity bought in Brazil by illycaffè. As it takes about 3-4 years for new coffee plants to enter production, the expansion of coffee purchasing in the early years documents illycaffè’s success in discovering the hidden quality in the Brazilian production market.

² Aguinaldo Lima (table 3)

³ Vera Brandimarte: “Cafés finos também para o Brasil” *Gazeta Mercantil*, 11-13.09.1993

⁴ Aldir Texeira (table 3)

⁵ Luis Norberto Pascoal (table 3)

Fig. 4: Total coffee purchases of illycaffè' in Brasil (source Illycaffè')

Disintermediation strategy and consequent direct interaction with farmers revealed the existence of an informational gap between roasters and farmers, which became the base for the second phase of illycaffè strategy. A fundamental problem in upgrading and maintaining quality was that farmers had no idea about downstream processes and consumer preferences (Luttinger & Dicum, 2006: 169).

Illycaffè understood that discovering existing quality hidden behind the commodity model was not enough to ensure increasing sourcing and realized that they had to build quality via technical knowledge transfer from roaster to farmers. To do so illycaffè set up a platform of TETs to win over the commodity business model and associated trade resistances. One element was an award competition.

“The Award ushered the dynamic of knowledge-sharing between illycaffè and the producers [...] We tried to transfer to the producers the knowledge about the quality variables that we consider important, and in particular the ones that we wanted to improve.”⁶

But switching to quality required on the one hand the abandonment of the conventional standardization and mixing procedures that had become familiar and entrenched in the coffee business and on the other hand the assumption of significant risk in presence of uncertainty concerning final markets and sheer ignorance regarding quality criteria demanded by end-users, channels to roasters, marketing techniques, processing technologies, certification schemes, etc. In addition, switching to quality required significant upfront investment in new varieties, processing techniques and in general a new approach in absence of certainty about demand.

⁶ Furio Suggi Liverani (table 3)

By these initiatives, the capabilities of farmers became embedded into a network of new institutional arrangements which fundamentally changed the transactional regime.

3.3 Shifting the transactional regime

Without an entirely new structure of accessing and disseminating information this shift to better quality would have been out of reach. The move to quality required the introduction of an alternative set of TETs.

Some of these TETs were directly introduced by illycaffè, others latched on and built on illycaffè's actions. We can divide the former into three groups. First, illycaffè organized a platform based on **a network of Brazilian institutional partners** to administer the Award and the direct interaction style with farmers. These are:

- Assicafe': quality analysis laboratory. Assicafe' relays quality criteria as demanded by final markets to producers and acts to match quality criteria with technical and agro-nomical capabilities of producers.⁷
- ADS (Assessoria de Comunicações): PR company. ADS manages the organization of the Award, Public Relations of illycaffè in Brazil, the suppliers' club and other image-related initiatives.⁸
- Porto De Santos: exporter. PdS manages the relationship with farmers after quality assessment.⁹
- PENSA¹⁰(University of São Paulo) manages the Coffee University and technical knowledge transfer to farmers.

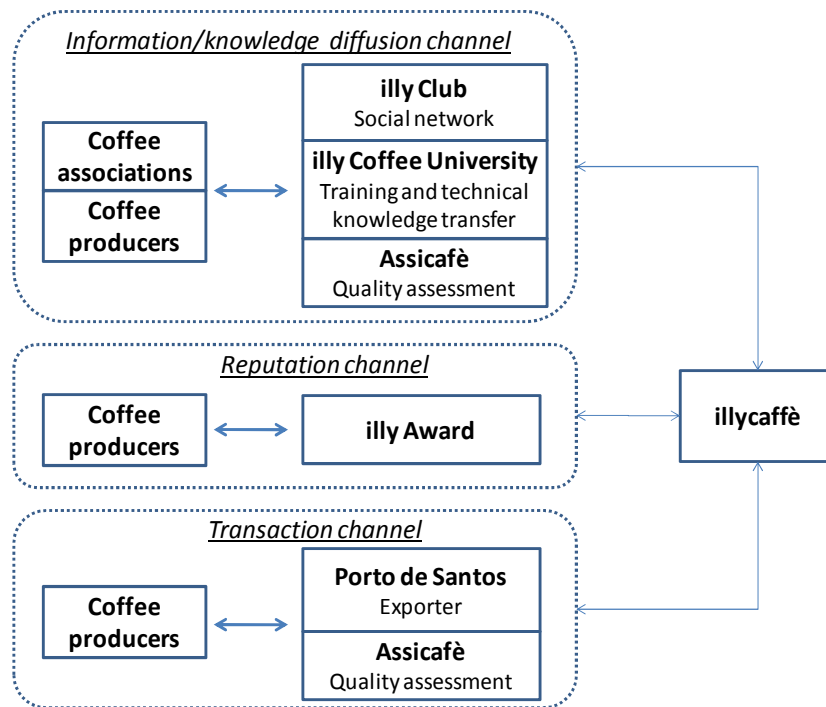
In the commodity transactional regime, intermediaries process transactions sequentially (information, goods and payments) along the supply chain, thus creating opacity between producers and consumers. In the de-commoditized transactional regime set by illycaffè, the drastic reduction of the supply chain complexity (enabled by disintermediation) made the chain transparent and created the preconditions for the rise of two further channels: the information/knowledge diffusion channel and the reputation channel (figure 5).

⁷ <http://www.assicafe.com.br/site/>

⁸ <http://www.adsbrasil.com.br/english/index.asp>

⁹ <http://www.portosantos.com.br/?page=empresa>

¹⁰ Program of Studies of the Agro-Industrial System Business, Administração e Contabilidade da Universidade de São Paulo.

Fig. 5: illy's Brazilian TET platform

Some of these functions (such as quality assessment and PR) were transferred from the roaster's country to Brazil in order to enable knowledge-intensive interactions with farmers that go well beyond contract negotiation. Others, such as knowledge transfer, were created ex-novo.

Second, illycaffè invested in **social capital** via trust building between roasters and farmers. This was new in the Brazilian market.

*"At that time [beginning of 90s] it was unimaginable that a roaster would visit us, give us an award for our coffee, and moreover, would pay a price differential."*¹¹

Trust-building is made possible by roaster-farmer direct interaction but required a long-term commitment.

*"The Illy family [and illycaffè managers] travels a lot, they got to every place in the world where there is good coffee. Only illycaffè does it, everywhere in the world. This is unique. No other espresso company does this. And because of this, they really sell the idea of quality. And they pay more..And the producers know it."*¹²

Long term commitment is expressed by their price policy.

¹¹ Aguinaldo Lima (table 3)

¹² Luis Norberto Pascoal (table 3)

*"I liked a lot the fact that from the very beginning illycaffè paid a price that was about 30% higher [than the market price] for our best coffees. There have been years in which illycaffè paid a price differential of 100%. In 2002 coffee was quoted \$40 at the New York Exchange and Dr Illy paid \$80."*¹³

Rewarding quality is not enough. The current president of CACCER (see endnote 20 and pag. 21) told us:

*"In most cases, big buyers pay a price inferior to the illy one, although sometimes for small batches of specific qualities they pay a similar price. Roasters, who want to reward investment in quality, end up paying the illy price... the difference, however, is that illy buys all quality coffee, they have a purchasing plan and this engenders a 'loyalty' agreement." Also, with other buyers I have to argue every time about price. With illy it is different, they fix a price for that period and they pay all producers the same price for coffee that pass their selection."*¹⁴

*"There isn't [in the coffee market] a business approach as ethical, respectful and trustworthy as the illy one. It is a pact, an engagement with the producer! illy's formula is a good program especially for smaller producers."*¹⁵

Illy effectively worked as an infinite demand buyer, over 17 years buying all coffee that satisfied illy's quality threshold.

Trust-building was reinforced by the platform third element: the **knowledge management program** that illy set in place to fill the knowledge gap between roasters and farmers. Technical knowledge transfer was supported by two institutions that illycaffè set up: the *Universidade illy do Café* and the *Clube illy do Café*. The former specializes in providing technical courses on coffee agronomy, processing and markets to farmers. The latter gathers illy's suppliers in a supplier club for more bottom-up and self-organizing knowledge-sharing initiatives.

The non-exclusive and open character of the network (Andriani, Biotto, & Ghezzi, 2011) was important to break the atomistic market model created by commodity markets. In commodity markets farmers compete on price and have little incentive to cooperate; it follows that their knowledge space tend to be highly local. Diffusion of micro-innovations and in general of knowledge is hindered. The creation of social capital, based on a business model that rewards quality improvement in a noncompetitive way (infinite buying capacity), set the initial conditions for an epidemic of cooperation, which continuously accelerated the transition to the new de-commoditized regime.

An interesting example of the emergence of social capital was revealed by a farmer interviewed in the Zona da Mata¹⁶ in Minas Gerais:

¹³ Aguinaldo Lima, farmer (table 3)

¹⁴ Francisco Sergio de Assis (table 3)

¹⁵ Luis Norberto Paschoal (table 3)

¹⁶ Zona da Mata (ZdM) is a high-humidity mountain area, where the dry exsiccation method (so-called natural) produces a fermented coffee known as *rio* or *riado*, the worst quality in Brazil. Coffee processed by the alternative method, the semi-washed, was not admitted at the illy Award before 1999. It turned out that the ZdM semi-washed coffee was excellent and went out to win several awards starting from 1999. The excellent placements of

“When we were all on our own, the producers looked at each other as enemies, adversaries. Now producers look at each other as ‘companheiros’ [mates]. ... This is what illy encouraged us to do in order to look at fellow producers not as enemies and consequently improve the relationship between producer and producer. Now we are a group of producers with a common objective: improving quality.”¹⁷

Farmers that produce quality coffee now routinely use associationism and cooperativism to not only achieve economies of scale in business activities but also acquire information, spread best practice and innovate. The networks set up by illycaffè (the Illy Club and University) link local associations and institutions in a wider network that transcend the boundaries of local associations and municipalities, thereby amplifying the diversity of knowledge available to farmers and enabling cross-fertilization of knowledge among different geographic areas. Rauscher and Andriani (2009) have documented the emergence of collective innovations which indicate the presence of an ‘innovation commons’: a space where sharing of knowledge, over a distributed network—made possible by social capital—enables agencement at a network level. Evidently, the enhancement of knowledge and skills of the farmers created the patterns of agencement, in the sense that this enhancement essentially relies on the embeddedness of farmers’ actions into a network with various other agents.

3.4 Networking the process of re-labeling coffee

The switch from quantity to quality is an indicator of a wider change in the labeling and the audiences of the coffee business. In table 1 we compare audiences and labels in the commodity and specialty regimes.

The literature on diffusion of innovation (Roger, 1995) and on informational cascades in social networks (Sornette, 2003; Watts, 2003) shows that in presence of uncertainty, radical change tends to manifest itself with waves (epidemics) of social contagion, in which the presence of critical thresholds of active neighbors is key to diffusion. The switch to quality we observed fulfills the criteria above. We can document a diffusion wave of switching from commodity to quality in one of the regions we studied. An analysis of the geographic spread of illy’s purchases over 1991-1995 (see figure 6) reports illycaffè’s Brazilian ‘geography of purchases’. As at the beginning of the 90s illycaffè was the only buyer of quality coffee and the Cerrado Mineiro was the first region to switch to quality in Brazil, the graph effectively shows the total amount of transactions of quality coffee. The ‘butterfly’ event that triggered the epidemics occurred in the town of Patrocínio, in the Cerrado Mineiro area (Minas Gerais). In 1990 Ernesto Illy met with Aguinaldo Lima the leader of the local farmers. Aguinaldo promised to participate to the Award and induce his social network to do likewise.

ZdM coffee at the Award triggered the adoption of the semi-washed processing method and related technology. Interestingly, although the semi-washed technology had been known in the ZdM at least since the 60s, but its diffusion had been blocked by the lack of channels for quality coffee.

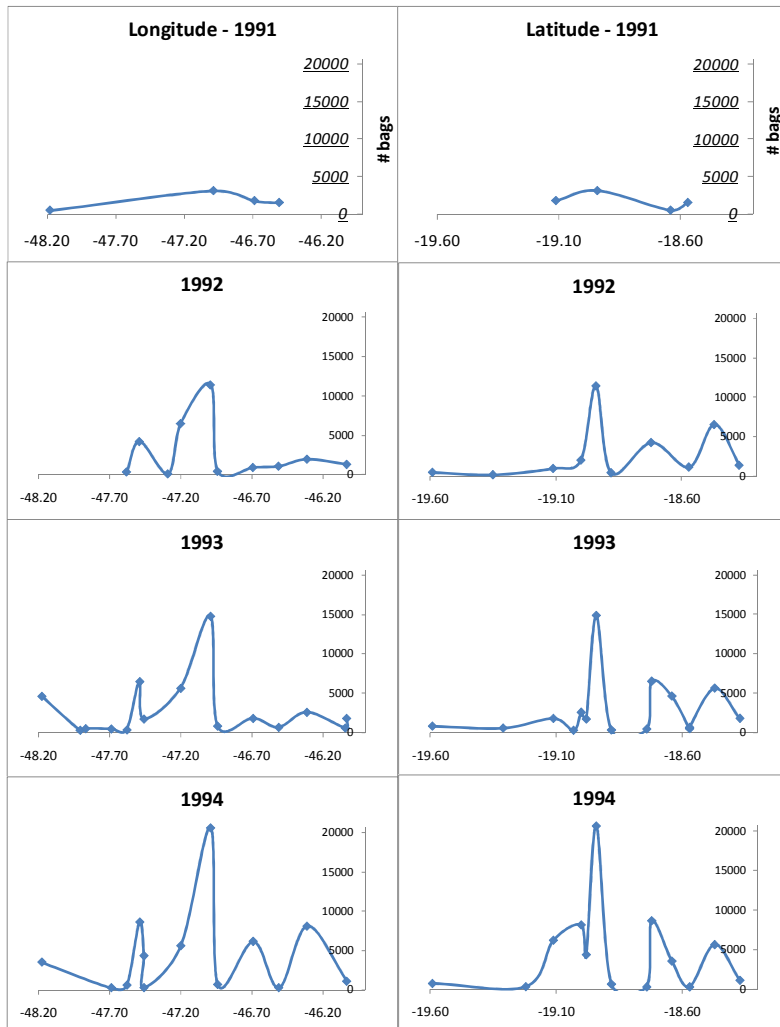
¹⁷ Alejandro Faria, Manhuacu (table 3)

Table 1: a comparison of labeling in the commodity and specialty transactional regimes

<u>Audiences</u>	<u>Commodity regime</u>	<u>Commodity Labels</u>	<u>Quality regime</u>	<u>Quality labels</u>
Consumers	Used to low-priced good, largely unaware of quality	Coffee as generic denominator for caffeine-based drink	Sensitive to quality, geography of origins and symbolic values.	Quality, specialty, gourmet, fair trade, organic, certified, sustainable,
Roasters	Selling relatively homogeneous product. Differentiation more marketing-based than product-based	Coffee as generic denominator for caffeine-based drink Mixture	Selling drinks with symbolic and geography-laden values	Quality, specialty, gourmet, niche, fair trade, organic, certified, sustainable, locality, appellations of origins, direct sourcing, relationship management, trust, loyalty
Intermediaries	Value-added activities in commodity regime	Mixture	None	None
Regulators (Brazilian Coffee Institute)	In charge of regulating interface between internal production and external markets. Insensitive to quality and differentiation	Price, stocks, national interests, export	None	None
Cooperatives	Market interface with decentralized producers. Mixing beans to achieve homogenous products as specified in international standards	Mixture	Traceability-based	Origins, locality, branding, appellation of origins,
Farmers	Competing on scale of production and cost	Quantity	Competing on diversification and quality	Quality, locality, direct selling, relationships, loyalty clubs, diversification
Financial markets	Global pricing and risk management for globally standardized commodity	Commodity, risk, futures	Bypassed	None
Certifiers	None		Quality assessment	
Associations	None		Promotion of quality and geography of origins	Quality, geography, GIO (geographic indicators of origins),

Fig. 6 shows that 3 out of the 4 Patrocínio's areas of influence participated to the Award and started as a consequence to sell coffee to illycaffè at higher-than-market price. The news spread via social network channels and induced a more pronounced participation the following year. The participation to the Award triggered the cascade of switching to quality.

Fig. 6: The incipient dynamics of geographical diversification and specialization



Diffusion of purchases made by illy in the Cerrado Mineiro region (Minas Gerais) between 1991-1994. The 4 graphs on the left-hand sides reports the longitude of coffee sales to illy (vertical axis: total number of bags; horizontal: longitude of council). The 4 graphs on the right-hand side show the latitude of sales. The name of the councils are shown below.

Municipalities in Cerrado Mineiro (MG)	Latitude	Longitude
Araquari	-18.64	-48.18
Araxá	-19.59	-46.94
Carmo do Paranaíba	-19.00	-46.31
Cascalho Rico	-18.57	-47.87
Coromandel	-18.47	-47.20
Estrela do Sul	-18.74	-47.69
Indianópolis	-19.03	-47.91
Iraí de Minas	-18.98	-47.46
Monte Carmelo	-18.72	-47.49
Patos de Minas	-18.57	-46.51
Patrocínio	-18.94	-46.99
Pedrinópolis	-19.22	-19.22
Perdizes	-19.35	-47.29
Romaria	-18.88	-47.58
São Gotardo	-19.31	-46.04
Serra do Salitre	-19.11	-46.69
Varão de Minas	-18.37	-46.03

The sudden emergence of regional distinctiveness broke the symmetry of the commodity game. Coffee growers quickly realized the need to set up associations to promote geographic quality distinctiveness rather than compete on geography-independent production efficiency. Confirming the epidemic model, the first associations copied but at the same time adapted the illy disintermediation model to suit their needs: they disintermediated the supply chain from the primary producers' standpoint in order to commercialize the 'hidden' quality that the illy model had demonstrated existed and the illy brand had implicitly certified. Hence, associati-

ons emerged to break the location-independence of commodity markets, stop the mixing practice and invest in the establishment of TETs necessary to transact location-specific produce ('geography of food'), such as, geographic brands (at a regional, sub-regional, local, farm-based), trademarks and quality certifications. 'Geography of food' requires a set of transformation not only in the commercialization market but also in logistic and warehousing. Commodity-based cooperatives didn't have the technology and neither the incentive to trace origins, i.e. they were not concerned with traceability, the capability to trace the beans to the specific locale of production. Traceability is a necessary condition to enable the emergence of 'geography of food'. Hence, the region had to develop a different type of cooperative, based on traceability to support geography-related quality.

*"In a big coop like Coxupe [largest commodity-based coffee coop in Brazil] the coffee enters and loses its identity. Our [cooperative] system is different and is devoted to preserving the origin of coffee and the identity of the producer."*¹⁸

The Cerrado Mineiro growers were the first to realize that Brazilian coffee could follow wine in reappropriating the geographic dimension and using it as a differentiator. Associations were key. In table 2 we report the diffusion of associations. The pre-1991 associations were meant to promote the diffusion of technology (irrigation, harvest mechanization and use of fertilizers) that were not typical of the traditional coffee growing routines. Post-1991 associations are meant to promote diffusion of quality within the region and to promote the image of the region with buyers. In particular:

*"The associations promote the product, organize the producers, spread information, help with export, hedging, funding and search of foreign buyers."*¹⁹

In the 3 years following the 1st award, all producing areas in Cerrado formed local associations. In the space of 3 years, seven new associations are launched against 2 in the previous 6 years. The associations acted to promote entrepreneurial actions related to the 'geography of food' (Marsden & Arce, 1995; Murdoch, et al., 2000).

¹⁸ Francisco Sergio de Assis (table 3)

¹⁹ Nelson Carvalhaes (table 3)

Table 2: Associations in the Cerrado Mineiro region

<i>Event</i>	<i>Town</i>	<i>Year</i>	<i>Nature of event</i>	<i>Source</i>
<i>Launch of ACARPA</i>	Patrocinio	1986	Association	Interview with Aginaldo Lima (AL)
<i>Launch of ACA</i>	Araguari'	1987	Association	Interview (AL)
<i>Launch of AMOCA</i>	Monte Carmelo	1992	Association	Interview (AL)
<i>Launch of ASSOCAFFE'</i>	Carmo do Paranaíba	1992	Association	Interview (AL)
<i>Launch of ASSOCORO'</i>	Coromandel	1992	Association	Interview (AL)
<i>Launch of ACANOR</i>	Paracatu	1992	Association	Interview (AL)
<i>Launch of CACCER</i>		1993	Council of associations	Interview (AL)
<i>Launch of ACASA</i>	Sacramento	1993	Association	Interview (AL)
<i>Launch of ASSOGOTARDO</i>	São Gotardo	?	Association	Document of CACCER: "O melhor de nossa terra" (available upon request)
First Caffe do Cerrado trademark		1993		Interview (AL)
<i>Launch of ACCAR</i>	Campos Altos	1994	Association	Interview (AL)
<i>Launch of COCACER</i>	Patrocinio	1994	Coop	Interview (AL)
<i>Launch of COCACER</i>	Araguari'	1994	Coop	Interview (AL)
<i>Launch of Paracatu' Association</i>	Paracatu'	1997	Association	Saes et al (1997)
First Appellation of origin		1998	Appellation recognized by state of Minas Gerais	Cafe' do Cerrado: Qualidade com Origem Certificada. Internal document of CDC (available upon request)
<i>Launch of FUNDCACER</i> (Fundação de Desenvolvimento do Café do Cerrado)	Patrocinio	1999	Foundation for the Development of the Cerrado Coffee	Interview (AL) Cafe' do Cerrado: Qualidade com Origem Certificada. Internal document of CDC http://www.cerradomineiro.org/pdf/release_port.pdf (accessed may 2011)
<i>Launch of EXPOCACER</i>	Patrocinio	2001	Coop for direct export	Interview (AL) Cafe' do Cerrado: Qualidade com Origem Certificada. Internal document of CDC
Sistemas of certification of Origin and Quality (Systema de Certificação de Origem e Qualidade)		2002	Certification system	http://www.cerradomineiro.org/pdf/release_port.pdf (accessed May 2011)
<i>Launch of CECCACER</i>	Patrocinio	2007	Centre of Excellence, R&D, training, technology transfer	Interview (AL) Cafe' do Cerrado: Qualidade com Origem Certificada. Internal document of CDC

In the Cerrado Mineiro, the following step consisted in coordinating associations' strategy by forming in 1993, again under the leadership of ACARPA, an 'umbrella' association (CAC-CER)²⁰, a council of associations, to manage the emerging brand of *Café do Cerrado*. The brand was built on the basis of the quality seal granted by the reputation of the illy award. Starting from it the Cerrado people developed quality and geography indicators: the first mark of quality —trademark or *consumption of an enterprise* (Daviron & Ponte, 2005)— was established in 1993. The first appellation of origin—*consumption of place* (Daviron & Ponte, 2005)— follows in 1998 (table 2).

The general sense of the transformation started by illycaffè, sometimes directly governed and sometimes just triggered, was a business model transformation, from a commodity one that constrained the existing diversity into a homogenizing funnel into a business model in which local differences could give rise to expanding niches.

We have analyzed the transactions of a single producer in the Zona da Mata²¹. The ZdM coffee had probably the worst quality reputation in Brazil.

One of the farmers told us:

*"We were seen as a region marginal in the coffee business, as a region producing coffee of bad quality. And when we managed to gain a prize at the illy award, we started to being seen with a different eye, we started to be considered as a region with a great potential for coffee production."*²²

The enabler of the transformation was the change in the rules of the illy award in 1999 which were relaxed to allow semi-washed coffee to participate to the award. Prior to 1999, there was no price incentive to adopt the semi-washed processing technique, due to low price that the ZdM coffee achieved in the market.

This is widely recognized in the region and beyond.

*"For us [Cerrado Mineiro] Dr. Illy was a great provider of credibility regarding the fact that we had quality coffee. In that region [ZdM] he inspired farmers to acquire conscience of the fact they could achieve a higher price. I personally accompanied Dr. Illy in the ZdM and observed the change in mentality."*²³

The analysis of the account of a producer proves that the story summarily described above is supported by the transformation at the micro-level of a single producer.²⁴

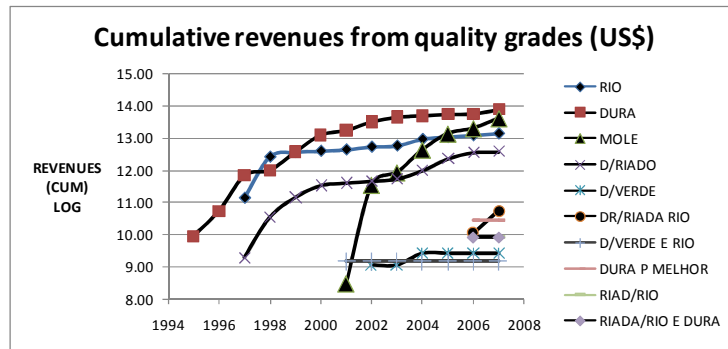
²⁰ Conselho das Associações dos Cafeicultores do Cerrado (Council of Associations of Cerrado Coffegrowers)

²¹ Relatively large producer (name is withheld) in Manhumirim (municipality in the Zona da Mata in Minas Gerais). This database covers the period 1995-2007, ideal to study the discontinuity which started in 1999 and was triggered by a change in illy award regulations²¹. The database covers 194 transactions. For each transaction, the following parameters are given: year of contract, number of bags sold, price in Brazilian reals and in US dollars²¹ and quality grade indication (consistently from 1997).

²² Alejandro (table 3)

²³ Aguinaldo Lima (table 3)

²⁴ It is unfortunately but also understandingly difficult to get real economic data about the region, due to a natural diffidence of farmers to open up their books and the lack of institutions documenting the transformation.

Fig. 7: Manhumirin producer: cumulative revenues per quality grade (period 1995-2007)

The first element of diversification regards quality grades. Quality grades reflect different types of drinks and are assessed by tasting coffee according to a set of procedures defined by national or international bodies. Figure 7 shows that the net increase in quality grades. The old grades reached a plateau and new grades (especially the high quality Mole) emerged. The transition started after the year 2000, fitting the account given above. Moreover, most new grades generated revenues typical of niche markets. Despite the fact that the data under analysis are local, i.e. a single coffee grower in the ZdM, the data confirms that the interpretation advanced in this paper, i.e. a bifurcation of quality from commodity via increase of diversity enabled by TETs, bears an impact at the local level.

Consistently with our interpretation, Figure 8 shows that the bell-shaped distribution typical of limited variety markets before 1999 evolved into a bimodal distribution after the discontinuity. This confirms the bifurcation dynamics.

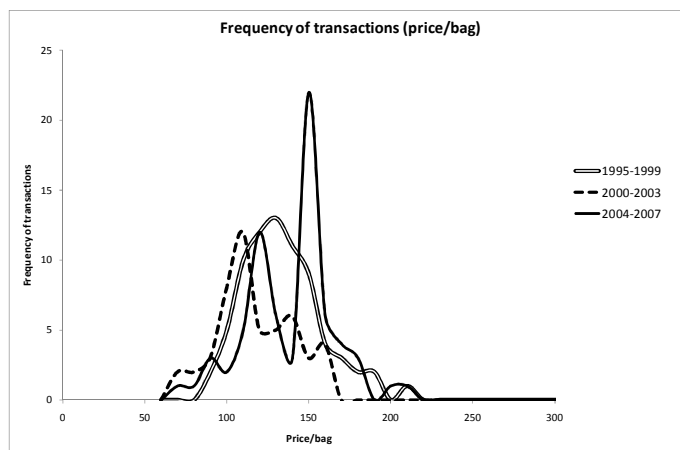
Fig. 8: Manhumirin producer: frequency of transactions of price/bag (1995 US\$).

Fig. 9 shows that most of the new quality grades generate niche markets (in terms of cumulative sales and number of bags sold) and clarifies the temporal development of the long tail.

The revenues of quality grades shifted from a compressed commodity curve based on three grades toward a curve with clearly identifiable head and tail grades.

Fig. 10: Manhumirin producer: average price/bag across quality grades



In conclusion, Illycaffè's actions, although small on an absolute scale illycaffè current purchasing share in Brazilian quality coffee is about 2% (our estimate), changed the main socio-economic attractor. They provided a channel to the existing but hidden quality, which bypassed the dominant commodity attractor and constituted a 'butterfly' event around which the coffee system re-organized. We have documented both the direct effect of illycaffè's strategy on the coffee system and some of the indirect, unintended effects. The sum of the two created the new quality attractor. This quality attractor changed the nature of comparative advantage, despite the fact that all basic determinants remained stable, such as endowments with labour, capital and natural resources. The essence of the change was in the shift to a new transactional regime, which enabled all agents in the coffee business to perceive coffee in a new way and to create new entrepreneurial opportunities by which the long tail of the quality distribution could be matched with the variety of consumer preferences worldwide.

4. Conclusion

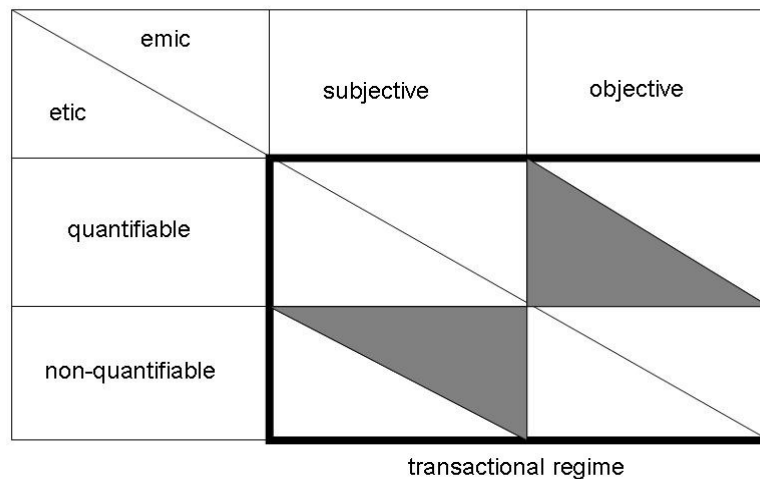
In conclusion, says João Carlos de Souza Meirelles, secretary of agriculture of São Paulo State:

"The Illys were pioneers,". "They helped us learning to produce high-quality coffee, first for them and then for everybody else. Today we don't think anymore in terms of quantity of production. We think in terms of quality of production."(Stein, 2002)

Illy's transactional innovations affected the pattern of TETs and changed the knowledge structure in coffee growing. A major change was the de-standardization of the distribution system and the imposition of expert assessments which allow for a much higher idiosyncratic diversity of qualities. This step was essential to enable Illy to open up the potential of the long tail on the demand side. It would have been impossible for the growers to take that step alone, because they were lacking the organizational capital to implement it. So, the reliance on a top Italian coffee brand was crucial to link the producer and the consumer side in the long tail dynamics.

We can analyze this process of entrepreneurial innovation as a shift of the transactional regime (figure 10). This shift was orchestrated by the interaction between numerous organizational innovations which changed the way how the two sides of production and consumption were connected via the world market.

Fig. 11: The bifurcation of the transactional regime in the global coffee business



This shift also changed the capabilities of farmers in a substantial way. Farmers did not only accumulate new skills and knowledge, but they also acquired new potentials for leveraging their agency via the establishment of new forms of cooperation. All these activities are driven by the business dynamics, without any primary role for motives of corporate social responsibility or other ethical concerns. The new transactional regime created new patterns of agen-

cement, which could operate without substantial changes in the position of the farmers, as far as individual characteristics are concerned, such as level of education or level of income.

As a result, new forms of performing the international coffee business emerged. On a most fundamental level, this means that comparative advantage is performed differently. Without any change of the basic determinants of comparative advantage in the coffee business, the patterns of production and exchange were revolutionized, and the product of coffee became to be conceived in a different way. This was directly reflected in the emergence of labels of geographic origin, which implied fundamental changes in the way how coffee is processed along the way from producer to consumer. In particular, the essential performative act in the commoditized regime, mixing, went obsolete in this market segment of the global coffee business.

Our case study demonstrates the empirical validity of the theoretical framework of performativity in economics. Conventionally, comparative advantage is exogenously given to the economic agents and manifests itself in the effects of price arbitrage, provided that markets are open. We have argued that comparative advantage is endogenous to the activity of trading. Trading plays the essential role in generating knowledge about comparative advantage, and in arranging the knowledge flows between the producer and the consumer. Therefore, realized comparative advantage essentially depends on the transactional regime. Transactional regimes connect with a pattern of capabilities on part of the producers, and can also fundamentally change their relation with the world market.

By implication, there are also different forms of actualizing agency in the context of world markets, relating with different transactional regimes. With the same constellation of fundamental forces of comparative advantage, forms of agency cover both the powerless, de-skilled and dependent farmer and the cooperating, inventive and knowledgeable small-scale entrepreneur at the two poles of the spectrum of alternatives. We think that this is a major benefit from our new theoretical framework: Connecting established economic conceptions of the international division of labor with the broader vision of development as empowerment and enhancement of human capabilities.

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Appendix 1

Methods: a longitudinal case study

Case selection:

The case allows the researcher to explore competitive advantage transformation in an agrifood commodity-quality transition. The project started serendipitously with an interview on complexity and management to the late Honorary Chairman of illycaffè Ernesto Illy. The interview revealed illycaffè role in the emergence of quality in Brazil.

Despite its immense geographic dimension, case manageability is ensured by the sub-regional concentration of the main changes. Analytical saturation was reached by studying two regions: first, the region where the change started and the main events unfolded, and second, for comparison, a smaller region with different characteristics, where similar patterns were found. As the transition started in 1990, access to the majority of relevant agents was obtained and many of them were interviewed.

Data collection and sources

Informants and interviews

The key informants were identified and selected in three stages. The first set involved illycaffè's inner network in Italy and Brazil in 2007 (see Table). The interviews clarified the main dynamics and raised new questions, to answer which two regional case studies were carried out to probe causality between Illy and the quality emergence. The interviews were held either in Italian, English or Portuguese. All interviews were open-ended and semistructured. All interviews (with one exception) were recorded and transcribed. Follow-up interviews and telephone calls were made to present results and discuss sticky points.

Observation

Fieldwork²⁵ observation included visits to several coffee farms in three Brazilian states and coffee institutions. We attended one Award ceremony in Sao Paulo.

Documents

We collected a large variety of documents and files. Of particular importance were two dataset: first, illycaffè Brazilian purchases with related geographic coordinates. This allowed us to document the spreading of quality. Second, the financial accounts of two primary producers firms, one of which was unfortunately unusable.

Secondary data

We collected secondary data from public and business sources. We obtained the dataset of all Brazilian newspaper and magazine articles that mentioned illycaffè, about 750 articles covering the period 1991-2007. The secondary material provided an invaluable source of unbiased information.

²⁵ Fieldwork was carried out by first author

Data analysis

The case describes a radical transformation starting from a *tiny initiating event* (Holland, 2002). It represents a challenge for theory and calls for novel theoretical frameworks.

We organized the data, categories and patterns in an overarching visual map (both directly and indirectly causal) in a broad temporal order. This *organizing strategy* provided a structure to both the ordering of the empirical facts and the structuring of the interpretative categories.

Next, we organized the empirical facts into periods in which different evolutionary patterns were punctuated by discontinuities. The structure of the evolution of events agrees well with Eisenhardt's (1989) embedded case study methodology. The periods are:

1. *Before illy*: commodity period.
2. *After illy*:
 - a. 1991-1998: illycaffè entry and launch of Award. This sets in motion the 'epidemics' of quality diffusion in the Cerrado Mineiro (first case) .
 - b. 1999-2007: regulatory change in the rules of access to the Award, which enabled the participation of humid regions where different processing techniques were required. This period is centered around our second case (Zona da Mata).

Although qualitative analysis dominates, we also used quantitative techniques to study the 'epidemics' dynamics and long tail hypothesis.

Validity

We used multiple types of triangulation to validate our results and followed Eisenhardt' (1989) invitation to use multiple case studies and triangulated the results of our regional cases.

We kept in close touch with some illycaffè managers and managers from the illy inner Brazilian networks with whom we discussed results and interpretations. When the conversation yielded divergent interpretations we went back to the explanatory frameworks to modify our interpretation and/or collected further data until saturation was reached.

Table 3: list of interviews

	Interviewee	Company and Role (at time of interview)	Date	Place
1.	Ernesto Illy	illycaffè , Chairman	21/07/2006	Trieste, Italy
2.	Furio Suggi Liverani	illycaffè , R&D director	05/07/2007	Trieste, Italy
3.	Anna Illy	illycaffè , Head of Relations with Producers	18/10/2007	Trieste, Italy
4.	Luis Norberto Pascoal	Luis Norberto Pascoal, Chairman of DaTerra, one of the largest coffee producing companies in Brazil http://www.daterracoffee.com.br/#/ids-home	26/11/2007	Campinas, SP, Brazil
5.	Aldir Texeira	Director Assicaffe', Quality Assessment	21/11/2007	Sao Paulo, SP, Brazil
6.	Alessandro Bucci	illycaffè , Brazil buyer, Green Coffee department	21/11/2007	Trieste, Italy
7.	Samuel Ribeiro Giordano	Professor, Coordinator of PENSA, The Agribusiness Program of the University of São Paulo.	23/11/2007	Sao Paulo, SP, Brazil
8.	Ingrid Rauscher	Director ADS; Public Relations	27/11/2007	Sao Paulo, SP, Brazil
9.	Nelson Carvalhaes	Director Porto de Santos; Exporter	28/11/2007	Santos, SP, Brazil
10.	Enrico Grossi	President of Alto Cafezal, a company owning about 1,200 hectares of coffee plantations and employing up to 1,500 people. Grossi was the first coffee grower (or among the first) to move in the Cerrado Mineiro in 1972.	01/03/2008	Patrocinio, MG, Brazil
11.	Aguinaldo Lima	First President of CACCER; Farmer	02/03/2008	Patrocinio, MG, Brazil
12.	Francisco Sergio de Assis	Current president of CACCER; Farmer	03/03/2008	Monte Carmelo, MG, Brazil
13.	Alessio Colussi	illycaffè, Director of Green Coffee Department (Purchasing)	11/02/2008	Trieste, Italy

14.	Sergio D'Alessandro	illy technician for the Zona da Mata area; Farmer	20/04/2009	Vicosa, MG, Brazil
15.	Filinho*	Unknown; Farmer	21/04/2009	Araponga, MG, Brazil
16.	Classificador name??	Araponga cooperative and association; Classifier and Farmer	21/04/2009	Araponga, MG, Brazil
17.	Vicenti Faria	Director of Association of Cafe' Speciais of Manhuacu; Farmer	22/04/2009	Manhuacu, MG, Brazil
18.	Alejandro*	Unknown ; Farmer	22/04/2009	Manhuacu, MG, Brazil
19.	Doutra	Fazenda Doutra, Farmer	22/04/2009	Manhuacu, MG, Brazil

* farmers refers to each other by first name

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