

SOURCING FROM THE BASE OF THE PYRAMID: PRICING INNOVATIONS WHEN MARKETS DO NOT EXIST

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Abstract

This study addresses the problem of how private companies can source new supplies from the base of the pyramid in a situation where supply markets are scant and hence price signals highly incomplete. We argue that innovative pricing strategies should take into account externalities and distortions brought by imperfect information in order to procure from and adequately remunerate BoP suppliers. An in-depth case study of Latin American's largest cosmetics firm, Natura, reveals how such innovative pricing strategies work in practice and under what contextual conditions they may succeed. Our results suggest that, in scant supplier markets, firms can pursue innovative pricing strategies such as the joint "construction of prices" together with BoP supplier communities. Thus, this study intends to advance the scholarly and practitioner conversation on how upstream BoP markets can be further developed.

Key words: supply, market development, market failure, pricing



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1. Introduction

Most of prior research on the Base of the Pyramid (BoP) has addressed the question of how the existing companies can make money by selling to the vast number of poor, estimated to add up to 4 billion people (Prahalad, 2005). However, Karnani (2007a, b)strongly criticized this view by arguing that private enterprise should rather focus on how they can increase the income of the BoP by buying from the BoP. This discussion gave rise to a recent stream of literature that focuses on sourcing from the BoP.

Whilst London, Anupindi, & Sheth (2010)points to productivity and transactional constraints of sourcing from the BoP, Cohen & Winn (2007) suggest that four different sorts of market failures provide entrepreneurial opportunities for firms that have discovered a way how to work around market imperfections. Specifically, London and colleagues' study suggests that prices are a key problem for BoP producers and that "guaranteed", "stable" or "consistent" prices for BoP producers by buyers are an important strategy to address "market security" concerns; some of their examples even mention that buyers practice "fair prices" or "protective prices" (London et al., 2010). In the same vein, Vachani & Smith (2008) have pointed out that information asymmetries often disadvantage the poor and result in the poor accepting utterly low prices. In other words, strategies involving sourcing from the BoP should take into account not only how to create new rents in BoP markets, but also how to adequately share them among disadvantaged target groups. Pricing will therefore be at the core of how BoP-generated rents will be split between BoP suppliers and their buyers.

However, there is still a lack of understanding on two issues. First, how do buyers and BoP producers find prices for innovative supplies, i.e. for supplies, for which no market and thus no prices a priori exist? Innovation at the BoP implies that in most circumstances new markets and products are being created. For instance, London et al.(2010) reports on a case in Africa, where Unilever sources Allanblackia nuts, a hitherto ignored raw material. Second, what are the mechanisms that explain how alternative, non-market pricing mechanisms can mitigate precisely those market imperfections that obstruct the discovery and growth of BoP supply markets. For instance, in markets for existing commodities, Vachani & Smith (2008) report how ITC's commodity procurement system has reduced information asymmetries and thus contributed to higher prices for BoP farmers. Expanding this stream of research, the present study seeks to address pricing mechanisms when commodity markets do not yet exist.

Examining such mechanisms is important to practitioners who can benefit from guidelines and recommendations that may help them to more effectively source from BoP producers. Likewise, given the very recent critique by Karnani (2007a, b), the question of how to source from the BoP is under-researched and novel case study based insights can contribute to future theory development on BoP sourcing.

The remainder of this study is organized as follows: the next section reviews the literature, positions this study and carves out an important gap in existing research: the underresearched field of sourcing strategies from previously non-existent BoP supply markets. Then, the theory section summarizes a few micro-economic concepts that can explain why new BoP supply markets are often not tapped and why pricing is essential to understanding



these market failures. After outlining our methodological procedure, a single case study explains and illustrates how market failures can be solved and how large companies can source from the BoP, in spite of adverse institutional conditions in developing economies. The final section identifies the managerial and theoretical contributions to be gained from this study's insights.

2. Literature review

In this section we review the existing literature along two dimensions. The first dimension refers to the stage in the supply chain where the BoP activities concentrate on and encompasses either upstream (supply) or downstream (demand) activities (see the horizontal dimension in Figure 1 below). The second dimension distinguishes BoP activities in terms of their innovativeness. The degree of innovativeness can be broken down into two major categories, modification of already existing activities and newness to the global, national or regional market (see the vertical dimension in Figure 1). Given the distinction between upstream and downstream markets in the first dimension, it makes sense to focus on supply innovations and on product innovations in the second dimension. Supply innovations refer to new sources of production inputs, e.g., raw materials or properties of existing raw materials that were previously unknown. Here, supply modifications refer to known raw materials or production inputs that were previously not sourced from the BoP. Both dimensions together result in a two-by-two matrix (Figure 1) that helps classify and identify gaps in existing literature.

[INSERT Figure 1ABOUT HERE]

Figure 2, in turn, compiles selected studies that address each of the four streams of literature represented by the four quadrants of Figure. As the present review intends to demonstrate, both scholars and practitioners have placed most emphasis on downstream activities or on the question of "how to sell to the poor", which is why the downstream column in Figure 1 has been sized larger than the upstream column. Apparently, most of the existing BoP research addresses consumer markets instead of upstream procurement (Chelekis & Mudambi, 2010; Chesbrough, Ahern, Finn, & Guerraz, 2006; Gorman, Werhane, & Mead; London & Hart, 2004; Olsen & Boxenbaum, 2009; Prahalad, 2005; Prahalad & Hammond, 2002; Sánchez & Ricart, 2010; Schuster & Holtbrügge; Seelos & Mair, 2007; Vachani & Smith, 2008).

[INSERT Figure 2 ABOUT HERE]

Karnani (2007b)and Garrette & Karnani (2010) strongly criticized this emphasis of BoP activities and research by arguing that firms should either increase the poor's real income by slashing prices without sacrificing quality or raise the poor's income by sourcing from them. While he contends that the former rarely exists, the latter is a clear defense of upstream markets (the right-side column in Figure 1):

I argue for the need to view the poor primarily as producers, not as consumers. By far, the best way to alleviate poverty is to raise the income of the poor and to emphasize buying from the poor rather than selling to the poor. (Karnani, 2007b, p. 102)



To support his claim that the price reduction, the first strategy to increase the income of the poor, rarely exists, he cites the example of small quantity packages, such as Shampoo (and other products) sold in small sachets. Small quantity sales create the illusion of affordability, also called the "affordability fallacy"(Karnani, 2007b, p. 95), and they may increase (unnecessary) impulse buying. Smaller sized packages can also require more packaging, which create additional waste, and may be less economical to produce than large packages. Therefore, Karnani argues that they are often sold at the same (or even higher) kilo prices as large packages. Moreover, changing packaging is certainly not a product innovation, but merely a minor modification of an existing product characteristic, which is why it should be classified in quadrant I of Figure 1.

As an example of an innovation that could be classified in quadrant III, consider the nutrient-rich, fortified yogurt, manufactured by Grameen Danone Foods in small localized plants (Yunus, 2010).Regarding innovativeness, the product is not only cheaper than existing products due to local production making expensive logistics redundant, but it also seeks to solve both health and food challenges simultaneously. However, the commercial success of the project is questionable (Garrette & Karnani, 2010), which underscores the difficulty of generating innovations at the BoP.

The second possible strategy, i.e., "buying from the BoP", as Karnani(2007b) advocates, is an effective, albeit hitherto neglected, way to develop the BoP. Probably in response to this claim, more recently, scholars have addressed the supply-side or upstream market and developed a framework of BoP production (London et al., 2010). The 64 ventures, on which their study is based, are mostly active in the handicraft and common agricultural products supply, such as fruits, coffee, diary or vegetables. Thus, most of these products can be classified in quadrant II that encompasses alternative sourcing of already existing products. While the ventures they examined are inclusive BoP ventures that seek to integrate formerly excluded poor communities into the formal market, they generally do not source new rawmaterials or components and, therefore, most of them do not classify as 'innovative'. Likewise, many studies focus on already existing products, such as coffee in the Starbucks case (Perez-Aleman & Marion, 2008). Similarly, although Reficco & Márquez (2009) address both upstream and downstream markets, the products or supplies already exist and do not characterize innovations. However, there are exceptions, such as the Allanblackia — Unilever venture(London et al., 2010), which, according to its website, deals with a new commodity hoped to bring economic growth and biodiversity benefits to the people in this region. For the first time, an edible oil from the seeds of the indigenous 'Allanblackia tree' will be extracted to produce commercial products sold throughout the world. (Source: http://www.allanblackia.info/<accessed on May 9, 2012).

Given these properties, this venture, which focuses on a "new" commodity, extracted "for the first time", can be classified as "innovative" and thus serves as an example for quadrant IV in Figure 1. This fourth quadrant represents innovativeness because it creates new markets for products that were previously in public domain (Barzel, 1997). By conducting research on resources that lie in the public domain – often considered as useless resources – private entrepreneurs can discover their value, which motivates them to create a market for these resources and thus enable value and rent creation for the company and its suppliers (p. 88)

This study focuses on new upstream markets or on supply innovations (quadrant IV), a field that the existing BoP literature has largely neglected so far. London et al.

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(2010)concentrate on productivity and transactional constraints that create obstacles to source from the BoP. Given the focus of this paper on supply innovations, we address the mechanisms needed to make supply innovation happen, especially under unfavorable resource scarcity and institutional conditions, the factors behind productivity and transactional constraints. To do this, the following theory part focuses on the conceptual underpinnings that explain why markets for potentially useful products, services or supplies do not exist. Drawing on these concepts, the subsequent case analysis addresses the mechanisms of how firms can overcome such market creation barriers in Bop upstream markets, make profit and spur local development.

3. Theory

The conceptual foundations of this study build on Cohen & Winn(2007)who assume that market failures, i.e. the violation of assumptions of neoclassical economy, explain why countless companies do not serve BoP consumer markets nor buy from BoP supplier markets. Contrary to conventional wisdom, market failures provide entrepreneurs at the same time with opportunities to develop innovative BoP focused businesses. These opportunities arise mainly because entrepreneurs see value where nobody else does (Foss, Foss, Klein, & Klein, 2007; Witt, 2007). Micro-economics literature has unearthed a set of factors that lead to market failures. Of these, this study addresses externalities and information failures and argues that the resulting imperfect pricing(Varian, 1994)can result in sustainable business opportunities for entrepreneurial firms.

Externalities arise when the market price of a product, service or raw material does not reflect its total costs (negative externalities) and/or benefits (positive externalities) for society. In the context of this study, purchasing hard wood from the Amazon (or other areas) results in a relatively low private cost for the purchaser (often no more than US\$ 10-20 per tree) compared to the considerably higher negative externalities or social cost in the form of landscape devastation, wiping out rare flora and fauna, erosion, fewer oxygen production and, eventually, climate change with all its harmful effects (flood, etc.).

Positive externalities are often found in public and merit goods, such as infra-structure, training and education, research and development, healthcare, among others. Private companies generally under-invest in such goods as they cannot fully appropriate their rents. This occurs because they cannot exclude competitors from using the infra-structure as well or from hiring away their trained staff.

As both negative and positive externalities are not priced correctly, theory informs that usually there are three possible forms for internalizing them: or by a Coasian solution, i.e., agents negotiate directly, or by Arrow's solution, i.e., a competitive market solves the problem through competitive bidding (Bertrand's solution), or by a Pigouvian solution, i.e., the regulator (the State) imposes a tax(Varian, 1994). The latter is a common solution if the regulator has sufficient information to quantify externalities; e.g., if a product's market-price does not reflect its social costs or benefits, governments often impose taxes to bring a product's or service's price in accordance with its social costs. Governments can also provide subsidies to companies in order to bring the costs, which a company incurs by providing goods with considerable positive externalities, in line with their ability to appropriate their benefits. Thus, governments intend to reduce potential market failures.

Imperfect information means that economic actors or exchange partners do not have access to all information needed to correctly price a product, service or raw material. For instance, BoP buyers may not acquire a healthier, more efficient product with lower operating



costs and thus lower medium- to long-run total costs, such as D.light's LED solar powered lamp because they get scared away by a higher initial product price compared to the initially cheaper but in the long run much more expensive kerosene lamp (Kennedy & Novogratz, 2011). Similarly, in upstream markets, BoP producers may not know the real commercial value of their products or of the raw materials they extract or they may not know potential buyers, their contractual conditions or future market demands. As a consequence of not knowing the economics, both buyers and sellers are likely to incorrectly price products, services or raw materials and, because of this, make the wrong choices about what they buy or produce.

The imperfect information problem lies at the heart of the literature on institutional voids and transaction costs. When buyers and sellers do not know of each other or if they cannot access sufficient information to assess their credibility and their commitment to existing agreements, markets either do not work or transacted products are priced incorrectly(Dhanaraj & Khanna, 2012). For instance, insufficient information on buyers may result in under-pricing and insufficient information on buyers' credibility or commitment may result in over-pricing to account for the implied risk. Because of the imperfect information problem, aggravated by lack of competition and a weak institutional environment that neither provides contractual safeguards nor efficient regulation, all three mechanisms to compensate for externalities, negotiating, competitive bidding and state regulation, would possible fail(Varian, 1994). That said, we are now in a position to refine this study's research question:

How can firms, who intend to source innovative supplies at the BoP (quadrant IV in Figure 1), internalize externalities by pricing Bop supplies if they cannot rely on corrective mechanisms such as perfect information, a strong institutional environment, or an efficient State as a regulator?

4. Methods

Our goal is to address strategies adopted by companies doing business at the BoP to work around the pricing problem. For this purpose, we focused on a company that has accessed upstream markets for innovative raw material supplies (quadrant IV in Figure 1). Despite the choice to delve deeper into a single case study, we contrast the emerging insights with examples from other more or less innovative upstream cases (quadrants III and IV in Figure 1). The chosen case is Natura, the largest Latin American cosmetics manufacturer and leader in its Brazilian home market. By studying Natura within a larger, multi-country multi-case study project, we came across an interesting phenomenon and a novel concept ("construction of prices", a term used by Natura's staff) that may challenge existing world views. Thus, this case was selected in an inductive manner to serve as an inspiration for new ideas and future theories (Siggelkow, 2007).

Natura, also known for its strong direct sales network and direct competition with Avon, offers a broad spectrum of products, ranging from lipsticks, soap, shampoo to body creams and perfumes. One of its flagship brands, Ekos, uses natural ingredients from the Amazon, such as oils extracted from exotic seeds rarely known elsewhere.

We interviewed Natura managers both at its headquarters at Cajamar, São Paulo State, and at Benevides, Pará State (Figure 3). The latter is located in North Brazil and part of the Amazon rainforests region. In addition, we interviewed representatives of Natura's business environment, e.g., NGO representatives and representatives of raw material supplier associations and cooperatives (see list of interviewed managers in Figure 4). All interviews



were recorded, fully transcribed and analyzed using qualitative data analysis software (AtlasTi).

[INSERT Figure 3 ABOUT HERE]

For these open ended interviews, we initially used an interview guide that included questions derived from the literature review (Chesbrough et al., 2006; Karnani, 2007a; London & Hart, 2004; Prahalad & Ramaswamy, 2004). Specifically, the questions addressed management buy-in, co-generation at the BoP, partners, formal and informal institutional obstacles and facilitators. Beyond that, the interviewers delved deeper into additional topics that emerged during the interviews. Extensive discussions among the members of the research team after each interview helped to clarify initial impressions and adjust and redirect the subsequent steps of the project (research triangulation).

[INSERT Figure 4 ABOUT HERE]

During the interviews, Natura employees and NGO representatives made available internal documents (Power Point presentations with project performance data), videos with testimonies, print material, such as instructive guides for Amazon community members, official publications and manuals of the partner NGO (FASE). This vast material facilitated contrasting and comparing our interviews with secondary data (data triangulation).

Data analysis proceeded as follows. We first codified the interviews and created "network views" of the concepts (a feature provided by AtlasTi software) in order to discover relationship among critical codes and concepts. Then, we contrasted their emerging insights with the related academic and practitioner literature(Eisenhardt, 1989). This approach allowed us to unravel the novel elements present in Natura's approach. Finally, by going back to the interview and secondary data, as well as to the academic literature helped to make sense out of the data and to cast light on the reasons why they have been successful.

5. Creating upstream markets for innovative supplies

Before the main research questions are addressed, the following subsection presents the competitive and institutional context. The context helps to understand why the upstream BoP market is important for competitiveness and why there is innovation, i.e. market creation for thus far unknown supply materials.

Context – global competition and local institutional constraints

Natura opted for a strategy anchored in a holistic philosophy and social, economic and environmental sustainability as a response to competitive pressures. In the early 1990s, Brazil opened up its domestic markets and, in 1994, the government introduced a new currency, the Real, through the Real Plan (*Plano Real*). Pegged to the US\$, this stabilization plan sought to curb inflation and trigger a new phase of economic growth. While cheaper imports and high domestic interest rates in fact slashed inflationary pressures, domestic firms started to face severe competition both from imports and market entry by foreign MNCs. At the same time, high interest rates and an underdeveloped capital market severely limited the possibilities to raise new capital, strongly needed to compete head-to-head with foreign MNCs. As a result, many Brazilian firms went out of the market or were acquired by foreign MNCs—a fate from which Natura tried to escape:



How does this business start? In 1996-1997, right after the "Plano Real", Natura is approached by the world's biggest cosmetic companies and we conducted a strategic analysis about how are we going to compete with L'Oreal, Unilever, Johnson, which invest millions of dollars in research and development, to research a molecule, and Natura realizes that in this area it would never be successful, because the investment allocations of these companies. Given the size Natura had in 1998, it would never be competitive; then Natura makes a bet, at that moment, which is to focus on Brazilian biodiversity as a central investment, and not only to research and use Brazilian biodiversity, but Natura goes in the direction of finding a sustainable development model, inspired in Amazon communities.[Interview #1]

As explained by Natura's Organizational Development Vice-president, the company's strategic choice reflects a "dodger"-strategy (Dawar & Frost, 1999), i.e., an exploitation of domestic strategic assets, in this case by re-organizing the local supply chain, in an industry (cosmetics) subject to strong globalization pressures. In other words, Natura sought to leverage a highly specific local supply source, hitherto not or only imperfectly accessible to its global competitors.

However, geographic remoteness (Amazon region) was probably only a minor barrier for foreign MNCs to access similar resources as Natura did because earlier in history, foreign MNCs were already quite successful in tapping formerly unique natural resources from the Amazon. In the 1876, for instance, Mr. Henry Wickham smuggled 70 thousand rubber seeds (Hevea brasiliensis) to England, which in the future had been spreaded to Malaysia, Thailand and Indonesia, derailing Brazil's former rubber monopoly and led to the economic demise of the Amazon region. Also in 1928, Mr. Henri Ford (owner of the Ford Auto Company) built a village named "Fordland" in Pará State in order to guarantee procurement of rubber for tires. More recently, in the early 2000s, a Japanese firm named Asahi Foods, patented the cupuaçu (Theobroma grandiflorum) plant, which caused widespread outrage in the Brazilian and world society. To deepen the understanding on the factors that make large-scale sourcing from the Amazon difficult, we need to address formal and informal institutional conditions.

Formal institutions refer to the regulative environment, administered by government agencies, police forces and the courts. They set the "rules of the game" and thus affect the choices economic actors tend to make as well as the capabilities they develop over time (North, 1990). In the context of this study, what counts are the rules imposed by the Brazilian government to regulate the exploitation of natural resources from the Amazon. In the words of Natura executives at headquarters,

The internal legislation ruling the sharing of rights is like hell, very complex, full of processes; it's confusing. Therefore I think no one implements it, Natura is the only company venturing for the implementation of that provisional measure, which generates several inputs for innovation.[Interview #4]

Both interviewees refer to the time consuming process firms should implement to fully comply with the government regulations. Specifically, private companies and public research institutions are required to register their biodiversity exploration projects before they even start to extract seeds or other chemical substances. The responsible agency belonging to the Ministry of Environmental Affairs (Ministério do Meio Ambiente - MMA), is called Executive Board Management of Genetic Patrimony (Conselho de Gestão do Patrimônio Genético - CGEN). As shown on the CGEN website, Natura is virtually the only private company that officially registers its biodiversity-related projects. Once authorized by the



CGEN agency, Natura is allowed to extract the seeds and other substances, however, a company is required to pay a sort of "royalties" to the participating Amazon communities—to which the Brazilian Government refers to as "benefit sharing". Often, Natura has invested the monetary resources from the benefit sharing agreements in infrastructure to improve the life of communities (e.g., community houses, health and educational infra-structure).

Informal institutions refer to culture and norms. They equally influence the behavior, choices and capability development of economic actors. The more different they are from mainstream economic behavior, the larger the difficulties companies face when partnering with them.

So the cultural aspect has a lot to do with that. And there are social processes backed by cultural ones that take a long time to occur. So the "cooperative spirit" that is necessary for everything to function locally and collectively takes years... decades. There is an issue about working with a group and make them reach a "cooperative spirit" or let them to achieve it on their own. When it comes to the administrative aspect, management, spreadsheets, stamps, maps and registrations in notary public offices, all of this is not in the farmer's mindset.[Interview #4]

This quotation implies that local communities need to be developed first in terms of managerial infra-structure and skills before they qualify as partners of large and sophisticatedly operating corporations. As mentioned by the interviewee, such a developmental process is not only costly, but it takes time, sometimes decades. Probably, because of formal and informal institution-related obstacles sourcing original raw material from the BoP is not only difficult and time consuming, but, worse, a medium- to large-scale market for raw material hidden behind these barriers rarely exists. The director of Natura's plant in Benevides, Amazon region, remembering a conversation between him and one of Natura's founders, summarized these contextual conditions as follows:

I challenge you to go to the Amazon with 5 million Dollars in your pocket and try to buy something. And you will see that you will not be able to buy anything.[Interview #5]

Abiding to the institutional environment (government regulation) creates high costs (investments, time-consuming process, benefit sharing with communities), however, at the same time, these barriers hide opportunities for entrepreneurs to create new markets (Cohen & Winn, 2007) and thus to develop specific expertise and to build rare capabilities, which may eventually set new standards for an entire industry. However, while literature is abundant on mechanisms to do business at the BoP, such as involvement of NGOs, networking or education (Chesbrough et al., 2006; Perez-Aleman & Marion, 2008; Reficco & Márquez, 2009), little is known on how companies can overcome malfunctioning or failing BoP producer or supply markets.

Market creation mechanisms – accessing the original raw material

Natura currently exploits raw materials (seeds, natural oils) in collaboration with 25 cooperatives and riverside dweller associations in the North Brazilian State of Pará. The exploitation of Murumurú (Astrocaryum *murumurú*) seeds from a thorny palm tree is an example of new supply market creation or supply innovation (see quadrant IV in Figure 1).

Murumurú is a seed from Brazil's Northern region that comes from a tree full of spikes. It is a problem...it was a problem there. So what did they do, what did the community used to do with the Murumurú? They cut the tree, knock it down and sell it as wood. That is what used to happen there until several years ago. Through our research on biodiversity, we



realized that this seed has a very fine oil, which you can use in soaps and they have extraordinarily good.[Interview #3]

As mentioned by the Natura supply chain director, the cosmetic properties of Murumurú were not known until recently when Natura's R&D staff examined the oil extracted from its seeds. Before delivering to Natura, the BoP communities did not have any information either on the seeds' economic value, which is why they were cutting down the Murumurú trees to make money by alternative economic uses of the territory. Because there was no market for the seeds, there was no market price either. Hence, one of the major challenges for Natura was to find the price of a good for which no market existed yet. More so, the price to be paid to the communities had to be competitive with respect to the commonplace alternative, i.e. deforestation:

And we managed to make use of Murumurú seed oil and pay a fair price for it too, thus rewarding those communities. After that it was interesting for those communities to keep the Murumurú trees standing and practice extraction every year. That's because we establish long term relationships, so they have a more permanent and constant income and that gives them some relief and allows them to plan. The forests stay intact, they have a better income than they used to have, we are generating innovation and, at the same time, preserving the surroundings, that is, quality of life, investment in institutionalization, organization of the communities, education and so forth.[Interview #3]

Pricing

Natura's innovative pricing mechanism is tied to the official minimum wage. The federal government adjusts the minimum wage on a yearly basis to account for inflation. Since president Lula from the Brazilian Labor Party took over the government in 2003, adjustments of minimum wages have become more generous in order to spur domestic demand and thus economic growth. Such policy is central to Brazil's economy because the minimum wage serves as an anchor to which many other prices are indexed. How does Natura find a price for Murumurú (and other types of raw supply) related to the Federal Governments' minimum wage?

At their Benevides plant in Pará State, Natura has set up a team of "eco-relations" managers. This team currently consists of six members, some of whom are former employees of Natura's partner NGO FASE and have earned graduate degrees in agricultural or forestry engineering. Eco-relations managers maintain strong ties with the Amazon communities with whom Natura does business, visit them periodically and provide technical assistance. Every year, generally, towards yearend, they visit each community to "construct prices" for the raw materials they source from them.

A key feature is that the construction of raw material prices is a collective process. As a FASE leader points out, Natura's pricing approach stands in sharp contrast to other companies' practices:

Different from what we are facing now, thinking of the individualism approach, where you establish a direct relationship with the peasant [referring to large corporations entering the region], we do not. (...) this means precisely to incentivize, to motivate a collective effort, the cooperative, to strengthen it. Well, this is what differentiates her [Natura] in the region. [Interview #8]

The construction of raw material prices takes place during a meeting with community members. Natura eco-relations managers ask community members about the time necessary to extract seeds from inside the rainforest. The time necessary depends on the workforce



available, accessibility, transport conditions, among other factors, and may vary from one community to another. Based on the required time to deliver the volumes asked for by Natura and based on the current minimum wage, a price is calculated. For instance, if the community stipulates 10,000 hours to extract the volume of seeds ordered by Natura, the company pays about 60 minimum wages (10,000 hours divided by roughly 160 working hours per month) of R\$ 622 (in 2012). This adds up to more than R\$ 38,000or, approximately, US\$ 20,000. Suppose that the community consists of 20 families, then each family receives an additional income of close to US\$ 1,000 on average per harvest. This amount may sound little for urban living standards in Western metropolitan areas, but is a significant addition to households that live on less than 1-2 US\$ per day, do not pay rent nor own expensive cars and grow or catch their own food supply (subsistence economies). The FASE leaders described this approach as follows:

It is a dialogue, because as you can see, some companies excuse themselves by claiming "oh, but it is a high cost approach", but if Natura can do it, then the other companies can as well. This shows that companies can have a more fair and democratic dialogue with the community. You get there, talk, and discuss prices rather than arriving with a certain predefined price. [Interview #8]

This dialog to construct prices is responsible for strengthening ties between Natura and the communities, creating a mutual respect and a safeguard for both sides, fostering more and more potential suppliers interested in dealing with the company. In fact, the number of families supplying Natura has increased from 475 in 2008 to 1,551 in 2011 only in the Pará region.

Although FASE, the NGO that works together with Natura and with the extractor communities, does not directly participate in the "price construction" process, it prepares the communities and thus develops the preconditions needed to turn the process successful:

I think, we make it possible that the groups keep their autonomy when they establish a relationship with the market; I think this is essential. (...) They [the groups] gain the chance to dialogue and to see the best opportunities that they may have, even with other markets and not only with one single company. So, what we intend to demonstrate, an even more important thing, diversification, nutritional security, which implies not to think exclusively in market terms. [Interview #8]

In short, FASE representatives see the communities' autonomy as a critical element to avoid dependence on individual buyers (e.g., by avoiding exclusive contractual relationships) and to develop a diversified nutritional basis and a diversified income stream. Thus, and through FASE's community development activities, extractor communities become more equal partners when they "construct prices" even with large corporations such as Natura.

Interestingly, Natura's pricing practices are not a function of market prices of the end products (cosmetics) either. The director of the Benevides plant [Interview #5] firmly rejected the idea to define raw material prices as a function of the end products' market prices (i.e., what remains after deducting all types of production, commercialization, and overhead costs. Meanwhile other cosmetics firms have imitated Natura and also extract Murumurú and other seeds from the Amazon. However, as indicated by the treasurer of Cofruta, a cooperative of fruit extractors, "Natura pays significantly more than other corporate buyers" [Interview #9].

The collaborative pricing approach does more than just setting prices under circumstances of new market creation, i.e., when markets did not exist a priori. As will be demonstrated below, the collaborative pricing approach contributes to mitigating a set of



problems, outlined in this paper's theory part, that constitute the underlying root causes of market failure.

Internalizing externalities

First, Natura pays a higher price for large quantities of seeds than the market would offer for similar extraction labor in the rainforest. Hence, it becomes more beneficial for the Amazon communities to extract seeds than to tear down and sell wood. Thus, Natura indirectly internalizes (part) of the social costs (or negative externalities) related to the environmentally unfriendly alternatives, i.e., deforestation and the concomitant decreasing biodiversity, as well as socially unsustainable alternatives, e.g., dependence on monocultures. Recently, competing economic alternatives have been challenging the communities' fruit extractor business. Large Brazilian firms, such as Vale (private mining firm), Petrobrás (state-owned oil company), among others, have, with the support of local municipalities, started to embark on large scale Dendê plantations.

There, we see that there are already communities that ceased collecting [extracting] in order to plant Dendê. (...) Today, the perspective is "you sell the area and you have guaranteed employment in the company". So, what happens? He [the peasant] is no longer producer but employee, and this does not completely satisfy his necessities. This creates a crisis not only for him, but also socially because the towns start to grow and there is no education and health [infra-structure] that absorbs all this demand. [Interview #8]

By internalizing part of these social costs, Natura, as a matter of fact, substitutes for the role of the State that, from an environmental economics perspective, should either highly tax, if not prohibit, sales of Amazon wood; or, alternatively, pay subsidies for substitute suppliers in order to make deforestation (and other predatory behavior) less attractive.

Second, Natura's strategy also addresses positive externalities. Natura only collaborates with already organized communities (cooperatives or associations of river dwellers) that are prepared to deliver the raw materials (seeds, flowers, roots, etc.) as agreed upon. To do this, Natura invests in these communities under four different modes. First, members of its eco-relations team periodically visit each supplier community and provide technical assistance. Second, Natura collaborates and sponsors the FASE, an NGO strongly present in the Amazon and active in developing cooperatives under principles of solidarity. Third, Natura hires a local consultancy firm that trains community members in labor safety measures. And, finally, Natura shares part of its profits derived from products that use ingredients from the Amazon with the communities. The latter, also called "benefits sharing", is part of the regulative framework Natura, as the only private company that does business in the Amazon, complies with. Thus "benefit sharing" seems to be the only form imposed by the regulator (CGEN)to curb negative externalities. As a result, the company directly and indirectly contributes to community and infra-structure development and, once again, assumes the role of the State:

Not always does the fund compensate them with money. Sometimes we do invest money, but mostly we build schools or renovate existing schools, invest in education, in the community's processing capability and the development of leadership, we invest in healthcare, and we always do that negotiating with the leadership. The most important point in the relationship with the community is to make sure you have a leadership developing and that this leadership is sustainable independently from Natura. Otherwise the community will have no autonomy.[Interview #1]



Since Natura does not sign up any exclusive supply agreements and since both Natura and FASE encourage the cooperatives to diversify their production and their supply contracts, Natura does not appropriate all the benefits of these community investments by design. In other words, competitors may free-ride on Natura's investments and exploit Amazon raw materials without having to invest in community and cooperatives' development. From a neoclassical perspective, the investor's (Natura's) impossibility to exclude competitors from using up the public goods created, explain why markets fail and why companies generally do not make investments whose benefits they cannot fully appropriate.

However, since Natura "constructs a price" together with the communities that account for negative externalities, which results in high rents as compared to alternative economic activities, the company indirectly creates a market entry barrier vis-à-vis competitors. Especially, smaller competitors are less likely to offer the same combination of supply conditions, this is, high volumes, prices similar to those paid by Natura, and long-term supply relationships. This seems to be consistent with the relational view, i.e., value creation requires value sharing among partners(Dyer & Singh, 1998).Equally, the cooperatives have an incentive to restrict collaboration to those companies that fulfill the same high standards. Hence, Natura will, probably remain the only private firm that appropriates its relationship-specific investments for a significant period in most of the cases. As a consequence, Natura indirectly internalizes the positive externalities of its investments.

Information sharing

As mentioned in the theory section, a related cause of market failure is imperfect information. The Amazon region hosts around 30,000 plant species (about 10% of the world's total) most of them with largely unknown cosmetic, nutritious or health-related properties. If such properties were known in detail by consumer products and pharmaceutical companies, a large supply market at the BoP would probably be thriving. Currently, however, potential buyers of seeds, flowers or roots from the Amazon ignore that market. This occurs because the already described institutional environment makes the legal examination and exploitation of these raw materials costly and time-consuming. Likewise, many producers make the wrong choices, e.g., burning or cutting down Amazon vegetation and thus destroying biodiversity, because due to imperfect information wood is priced as if it was non-exhaustible and the market prices of wood sales do not reflect all its social costs (see our early discussion on negative externalities).

The apparent lack of information on the cosmetic properties of ingredients from the Amazon is particularly problematic for a firm such as Natura. As each research and exploration project needs to be registered at CGEN for authorization, which is costly and takes time and exposes this kind of information to competitors, running for the wrong ingredients has a cost. Making bad choices may result in losing time, product pipeline problems and thus loss of competitive advantages. Such costs due to lack of information(Varian, 1994), and subsequent bad choices can reduce (or eliminate) the incentives to source from BoP markets; hence markets fail.

FASE's work seeks to address this cause of market failure by teaching the cooperatives to self-organize that should help them to have "information in order to take better decisions and not to focus their decisions on exclusively commercial questions" [Interview #8]. Moreover, by constructing prices together with Amazon communities, Natura creates an incentive for information sharing, enabling the possibility of internalizing externalities. Community members have been instructed by the NGO to diversify their



production to avoid economic setbacks when demand for products using certain ingredients drops. By offering a package of attractive prices and investments in the communities, community members have an incentive to share their expertise or their tacit experiences with Natura employees. The following example illustrates how cosmetic properties of raw material from the Amazon can be discovered:

The folks who work on the field expeditions noticed that the women who extracted the milk out of the nuts, which are hand pressed, had very good skin on their hands. So they ask the women, and the women reply that they use the nut milk, and you do the research and find the moisturizing properties of the nut milk. So that comes from the relationship with the community. [Interview #1]

In addition, Natura has started to map the areas where the cooperatives are active by using GPS technology and also exchanges information on the existing and potential cooperatives with FASE (Figure 3). This data is being used to certify the origin of raw material from Natura's partner cooperatives. Moreover, it permits Natura and the cooperatives to increase the efficiency of raw material collection by providing information on where the most abundant extraction areas are located and by identifying the shortest routes between the extraction and the collection sites. Thus, technology helps to increase yields and to reduce workers' workload. Hence, information sharing helps to address a further cause of market failure identified by Cohen & Winn(2007), "inefficient firms".

In summary, the construction of not only fair prices, but prices that reflect workloads, are dynamic as they are tied to yearly adjustable minimum wages and thus are higher than the compensation of environmentally and socially unsustainable alternatives, seems to mitigate two key causes of market failure at the BoP: externalities and insufficient information. Thus, private companies' strategies substitute for the role that textbooks ascribe to the State (taxes and subsidies) and can create new innovative supply markets at the BoP.

6. Discussion and conclusion

This study has asked how buyers and BoP producers can find prices for innovative supplies, i.e. for supplies for which no market and thus no prices a priori exist. Such supplies may encompass previously unknown materials or known materials with hitherto unknown properties. The case of Natura, the largest Latin American cosmetics company, has disclosed an innovative pricing mechanism, called "price construction" by its creators. This study has revealed how it works and under what conditions it is applicable.

Our theoretical motivation was to understand why price construction is necessary and why it explains successful relationships between private companies and BoP communities. Market failure has previously been appointed as a key reason for the question of why firms rarely do business at the BoP or why BoP business models often fail(Cohen & Winn, 2007). The core of the problem is that "fair" prices, regularly mentioned in the academic and practitioner literature (London et al., 2010; Perez-Aleman & Marion, 2008; Vachani & Smith, 2008), will be difficult to ascertain when markets are new or when externalities are present. Although the buyer could disclose the expected profit from the transaction and then find a way to share it, in a context of imperfect information, it will be difficult to do so.

Therefore, the second question we asked was how "price construction" allows firms to overcome market failure by internalizing externalities at the BoP if they cannot rely on corrective mechanisms, such as perfect information, a strong institutional environment, or an efficient State as a regulator. In essence, price construction results in the redistribution of economic benefits between the buyer and the BoP supplier under imperfect information. From



the perspective of BoP communities that face the choice between sustainable and unsustainable economic behavior, price construction internalizes a share of the negative externalities caused by potentially unsustainable behavior. Thus, price construction makes socially and environmentally sound economic practices more attractive for the BoP communities. Moreover, price construction creates incentives and a mechanism for information sharing between the BoP population and its partner companies. Hence, price construction reduces the information asymmetries that give rise to market failure, creates positive externalities for society that eventually benefits from an intact environment and creates new sourcing opportunities. Thus, innovative pricing strategies by private firms in scant supply markets address a host of problems whose solution is normally executed by the State.

As for the study's theoretical implications, the novel concept of price construction extends existing economic theory on pricing mechanisms that has largely concentrated on taxes and subsidies implemented by the State, competitive bidding among several competing buyers or sellers, or price negotiations between partnering entities(Varian, 1994). Price construction is distinct from negotiations where partners arrive at the negotiation table with predefined price ranges. This happens because price negotiations presuppose that both negotiators know their own and their partner's utility functions and thus have access to information on the traded material's commercial value as well as on the costs incurred by its exploration.

Why do we believe that price construction occurs precisely in new upstream BoP markets? First, different from the less instructed BoP suppliers conventional suppliers would most likely have collected, analyzed and used information in a more determined and systematic fashion. This would have allowed them to predetermine a price range and make their prices notion explicit. Likewise, the State would have sufficient information to make price interventions more effective. In contrast to upstream Bop markets, in downstream BoP markets, many potential buyers would make a bidding process possible. Whilst several potential sellers are probably present in upstream BoP markets as well, corporations generally ask for large quantities to reach economies of scale. Purchases from innumerous individual BoP sellers, however, would impose high transaction costs and therefore very likely result in market failure. More importantly, potential sources of innovative supplies are limited by definition. For these reasons, an in-depth analysis of non-market BoP pricing strategies requires addressing quadrant IV in Figure 1 and thus underscores the theoretical relevance of our "innovativeness by supply-chain" framework.

Therefore, future research might seek to identify other innovative pricing strategies at the BoP and thus nurture future theory development on non-market pricing in a context of severe market failure. Such research can also provide practitioners with useful insights.

Concerning managerial implications, we may ask why private companies should engage with the BoP given the considerable costs of price construction. Natura's success, with an average yearly growth rate of 27% between 2005 and 2011, suggests that such strategies can work out financially. There are two main reasons for this. First, as in the case of Natura, firms may make their BoP strategy public, emphasize the social, environmental and health benefits of their products and consequently charge premium prices from end consumers in return. Second, their supply innovation may contribute to cost reductions elsewhere in spite of the redistribution of benefits as in the case of Huatai Paper Company. The Chinese firm Huatai uses straw pulp instead of wood pulp (London et al., 2010) and, in doing so, avoids more expensive imports and thus reduces supply costs.



To make this happen, managers can create innovative pricing strategies to overcome market failures. Specifically, they can increase their knowledge on pricing strategies to activate BoP supply. While several cases suggest that "guaranteed", "stable" or "fair prices" should be paid (London et al., 2010), how economic actors can come up with such prices when prior, market-based references do not exist has largely remained obscure. Our study casts light on this black spot.

Therefore, private companies should not shy away from market failures; on the contrary, there is reason to embrace them because BoP supply sources are likely to be very numerous. Unknown raw materials with unknown properties are abundant not only in the Amazon, but all around the Earth, where an estimate of more than 80% of the Earth's species remain still unidentifiedi. For these reasons, there remain many entrepreneurial opportunities to move objects from the public space to private realms (Barzel, 1997) and to generate rents for companies and their stakeholders by creating new markets.

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Tables & figures





Supply Chain Stage

Quadrant	Author &Source	Description		
I. Product or	(Prahalad &	Casas Bahia, Cemex Patrimonio Hoy, Annapuma		
Service	Hammond, 2002);	Salt, HLL' Soap, Jaipur Foot, Mobile phones,		
modification	(Prahalad, 2005)	Aravind Eye Care System, ICICI's microfinance,		
		Voxiva, among others		
II.	(London et al., 2010)	Agricultural Marketing Initiative, Casafruits, cashew		
Alternative	(Perez-Aleman &	Production Project, Honey Care Africa, Integrated		
sourcing	Marion, 2008)	Tamale Fruit Company, Kevian, Tiviski Dairy,		
	(Reficco & Márquez,	Tujikomboe, Jaipur, Amanco,		
	2009)	CONASE/Corporacion Solar, Votorantim Celulose e		
	(Vachani & Smith,	Papel, Sadia Swine, among others		
	2008)	ITC (trading firm)		
III. Product	(Garrette & Karnani,	P&G PuR, Essilor (eyeglasses), Grameen Danone,		
or service	2010; Karnani, 2007a;	Coco Tech, POEMAtec, TIVISKI, among others		
innovation	London & Hart, 2011)			
IV. Supply	(London et al., 2010)	Amul, Huatai, ITFC, VCP, Unilever on Allanblackia		
innovation		and NaturaAmazon biodiversity resources		

Figure 2– Literature review

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Source: Natura (2012) Figure 4– Interviewees

Entity	Function / Position	Interview details	#
Natura Headquarters	Marcelo Cardoso - Organizational	45 minutes	1
Cajamar /SP	Development Vice-President		
	Leandro Machado - Board of	45 minutes	2
	Directors Communication Manager		
	Ricardo Faucon - Global	40 minutes	3
	Procurement Director		
	Communities Relation Manager	55 minutes	4
Natura Benevides /PA	Director of Benevides Industrial	120 minutes	5
	Unity (BIU)		
	Eco-relations Manager at BIU	60 minutes	6
	Eco-relations Coordinator at BIU	60 minutes	7
NGO (Fase) Belem/PA	Three leaders of FASE Amazon	120 minutes	8
	(collective interview)		
Cooperative Coofruta	Treasurer of Cofruta	20 minutes	9
Abaetetuba/PA	Plant Manager of small scale oil	20 minutes	10
	extraction plant sponsored by		
	Natura		
Association Jauari / Moju	Association Leader	120 minutes	11
PA	Association Members	60 minutes	12

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ⁱThe National Geographic. 2011. 86 Percent of Earth's Species Still

Unknown?<u>http://news.nationalgeographic.com/news/2011/08/110824-earths-species-8-7-million-biology-planet-animals-science/</u>, accessed in May 2012.