A NOTE ON COMPETITION IN THE PRESENCE OF B CORPS

Rafael Pinho de Morais (Rio de Janeiro State University)

and

Pedro Hemsley (Rio de Janeiro Federal University)

WORK IN PROGRESS.

ALL COMMENTS ARE VERY WELCOME[1]

Abstract

B Corporations (or B Corps) are firms certified after due verification of their compliance to a set of rules concerning (environmental) sustainability and good practices towards their workers and the community in general. This means B Corps are firms who do not focus exclusively on profit maximization, but have an objective function more aligned to the public interest, in terms of socio-environmental concerns. They thus assign non-negligible weights on each vertex of the triad profit, planet and people, also known as "the triple bottom line" in the Business literature. This is the starting point for building a Firm Theory of B Corps and then studying market outcomes and the (eventual) need for Regulation and/or a differential treatment in Antitrust/Competition Policy. In other words, we introduce some Industrial Organization of B Corps in this short paper.

What are the optimal choices of B Corps, as concerns how much to charge for their product or how many units to produce? Are B Corps viable when competing against traditional businesses? Under which circumstances? Should the government intervene? How and why?

This paper aims at providing first answers to those questions.

Key words: *Triple Bottom Line, B Movement, B Corps, Microeconomic Theory, Regulation, Competition*

JEL codes: L21, L22, L1, L13

[1] Mailing author: rpinhodemorais@gmail.com

1. Introduction

The B Corporation Movement – or B Corp Movement, or even B Movement – started in 2006 as "an organization dedicated to making it easier for mission-driven companies to protect and improve their positive impact over time." By the end of 2007, the organization had launched its B Corp certification and already certified the first 19 B Corps.

Being a B Corp means a firm complies with strong minimum standards towards the environment and the community in which it operates (firms' employees and the population around the firms' facilities, but also its suppliers and consumers). There are currently about 2800 certified B Corps worldwide, covering as many as 150 industries and 64 countries – but all have just 1 goal.[2] This one unifying goal – of doing the right thing – translates into a tripod of Ps: Planet, Profit and People. These are also known as "the 3 Ps of Sustainability" or "the triple bottom line" in the Business literature and jargon.[3]

B Corps range from small local businesses to global players, "from sole proprietors to publicly-traded companies". On one side there is a local producer of cookies in New York (Greyston Bakery) whose Open Hiring model "fills jobs without judging applicants or asking any questions. It creates opportunities for those who have been kept out of the workforce." On the other extreme, there is a juice producer in Rio de Janeiro specialised in an innovative juice from a barely known fruit of an endangered palm tree (Juçaí). Half way, important global businesses like Ben & Jerry's (ice creams) and Patagonia (sports equipments and clothes) are part of the B Movement (and certified B Corps), as well as the largest organic wine producer in the world, the Chilean Emiliana.

What is common to all those businesses is the genuine interest in contributing to a better society, in so-called "doing the right thing". In all cases studied and literature reviewed (see next section), it is pretty clear that the B certification comes as a natural consequence of a deeper primary objective: being good, being a good firm, making its employees happy, contributing to regenerating an endangered environment etc. Getting certified as a B Corp is not an objective *per se* – especially since it is not quite known as a certification, and as such do not aggregate value to a firm's product, as is the case for example of other certifications such as organic product or a fair trade one.

On the academic side, there is a growing body of literature specifically on B Corps in the Business and Management arena, in particular as concerns Entrepreneurship. To the best of our knowledge, however, the Economic literature is totally lagging behind.

We aim at proposing a framework to deal with a quite recent and sharply increasing phenomenon: firms who do not care only for profits. In this, we mean all sorts of environmental-friendly, people's friendly (like "fair trade") etc. certifications. Our focus is on B Corps for their "fanciness" in the Business Literature and also, as will be pretty clear soon, since we treat B Corps as the general case, with all other "friendly" certifications as ramifications or special cases of it, in our unifying framework.

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[2] According to their website: https://bcorporation.net , as of the 27th March 2019.

[3] The B Movement is definitely only one out of many initiatives focusing on the 3 Ps. A sister one is www.consciouscapitalism.org, who runs a survey of firms satisfying 4 criteria: higher purpose, stakeholder orientation, conscious leadership and conscious culture. The Brazilian www.humanizadas.com launched a 2018-2019 version of the Conscious Capitalism survey. Paro et al. (2019) present its methodology and preliminary results and will be exploited later in this paper.

We focus on B Corps on the paper for a couple of reasons: easier to call them throughout the paper, clear Impact Assessment questionnaire freely available online focused on the 3 Ps of the triple bottom line and because they sponsor an initiative called B Academia, which focuses precisely on supporting academic research on the B Movement and B Corps. The B Academia has not directly supported this paper, but provided data and a forum for discussion of a preliminary version.

We start this paper by reviewing the relevant literature in Section 2. We then move on to Section 3 and start some Firm Theory of B Corps: what its objective function is, how it makes its optimal choices etc. Section 4 deals with Industrial Organization involving B Corps, meaning we introduce B Corps of Section 3 in basic oligopoly models to check out what happens (behaviour and outcomes). Where the outcomes are not the ones desired by society as a whole – i.e. where the equilibrium is Pareto inefficient – we aim at studying the role of public policy (Regulation and Competition/Antitrust). Some insightful and sometimes surprising results come out. Section 5 concludes this paper.

2. Literature Review

The Management literature is developing quickly on the study of B Corps, how they emerge, how they are managed etc. and on the reasons for failures (bankruptcy) or decertification, the latter being a quite common phenomenon.

On the Economic literature seems, however, to be legging behind. The closer one can get to a Microeconomic Theory of B Corps is by studying Museum Economics or Cooperatives, or the studies of Nobel Prize winner Elinor Ostrom on the governance of Commons[4] and policies to foster desired collective actions, which is quite inserted into Behavioural Economics (trust, reciprocity, reputation etc.). According to the Nobel Committee, Ostrom "challenged the conventional wisdom by demonstrating how local property can be successfully managed by local commons without any regulation by central authorities or privatization". The same idea underlies the B Movement: desired goals, beneficial to society, can be achieved by individual behaviour and the group is the one defining internal rules, not the government.

What differs both settings – Ostrom's *versus* ours – is that in Olstrom's competition was not an issue. She was concerned with the self-regulation of a public good – also known as a common resource once it leaves non-rivaly – such as a forest or a national reserve. On the other hand, every single B Corp has to conquer consumers, compete against competitors who do not subscribe to B Movement standards, thrive and try to survive as a company.

It should be mentioned that over 30 years ago, Fershtman and Judd (1987) were already challenging orthodoxy in Firm Theory and IO. Their first two sentences are emblematic, and could also be our first sentences in this paper:

"Orthodox economic theory treats firms as economic agents with the sole objective of profit maximization. Some have criticized this view of the firm as being simplistic, arguing that real firms may consistently strive toward a different goal." However, they cite sales maximization as a possible deviation from orthodoxy, as proposed by Baumol (1958), but their focus is on the owner-manager relationship and the incentives scheme coming out of this principal-agent problem in oligopoly, in a quite similar way as Fershtman (1985) had done.[5] The basic idea is that due to managers′ incentives and the competition among managers as well as firms in an oligopolistic setting, by setting a target for managers away from profits – like rewarding them on the basis of sales maximization – owners actually maximize profits

[4] Commons were the areas used by a community in medieval Britain. They were owned by the whole community but individual cattle (like cows) were owned privately. The Commons gave rise to a widely known result in Economics called "The Tragedy of the Commons", which is basically a coordination failure leading to an over exploitation of the resource whose property is shared. Olstrom's studies challenged that result.

[5] According to La Manna (1987): "Chaim Fershtman (1985) showed that nonprofitmaximizing firms may enjoy more profits than profit-maximizing firms in a duopoly". This is precisely the same rationale here.

(since competing managers, by learning that incentive scheme, will for example produce less in a Cournot setting).

This result is similar to the claim of B Corps enthusiasts that by not focusing (solely) on profits actually ends up increasing profits. If this is a general feature, this would mean – within the conventional Microeconomic framework – A Corps are not rational, or at least have necessarily some cognitive limitation, i.e. some Behavioural Economics handicap. There is definitely a need for more Economic Theory on this topic.

Gibbons (2005), on his turn, proposes an interesting unifying framework comparing four different strands of Firms Theory: rent-seeking, property rights, incentive system and adaptation theory. His main focus, though, is on integration, defined as “Coase’s make-or-buy problem”, or, as he says, “Theories of the Boundary of the Firm”. He explicitly leaves aside “related topics in organizational economics (such as structures and processes inside organizations)”, and also any consideration on other possible objective functions of a firm.[6]

This short paper aims at striving to start to fill such gap. We check how the conventional Microeconomic theory can handle the introduction of B Corps (or more generally, firms focusing on socio-environmental outcomes instead of only profits) into the picture. Our bottom line is to check if Ostrom’s claims apply here too, namely if the equilibrium outcome shall be a desired one, or, else, if a bit of push from the government is necessary – and how it should then be implemented.

3. Firm Theory of B Corps

Ordinary Firm Theory – taught in any undergraduate course of basic Microeconomics – assumes every firm maximizes profit. This section deals with the decisions made by a B Corp, i.e. a firm who is not only interested in profit, but also people and planet.[7]

This means in analytical terms that a B Corp is also a rational firm choosing precisely the same choice variable(s) as an ordinary profit-maximizing A firm – which can be the price of its product in a Bertrand configuration, or the quantity to produce in a Cournot (simultaneous) or Stackelberg (sequential) setting, or its location in a Hotelling model, how much better to make its product (vertical differentiation) or in which niche of consumers to focus at (horizontal differentiation) etc. What differs a B Corp from an A Corp is only that it has a different objective function – not its choice variable(s), which is (are) given by the market structure in place. Namely, every firm is assumed to maximize:

$$\Pi = \alpha.People + \beta.Planet + (1-\alpha-\beta).\pi \qquad (1)$$

Π is a broader notion of benefit to the firm than strictly profit π. Parameters α and β are positive weights ($0 \leq \alpha \leq 1$ and $0 \leq \beta \leq 1$), chosen beforehand by the firm.[8] Endogenous variable Planet measures the firms’ activities environmental impact and can be a perfectly quantifiable measure as the widespread carbon footprint or water footprint, or some broader

[6] As a matter of curiosity, the word “objective”, present in “objective function”, does not appear at all in Gibbons (2005) and the word “profit” appears only once, when describing a merger case. This makes clear all four theories revisited there assume firms maximize profits.

[7] This way, we are here – humbly – trying to build a new Firm Theory, in an analogous way to the competent job performed in Stigler and Becker (1977) as concerns Consumer Theory incorporating Behavioural features.

[8] For the time being we focus on the production stage of the oligopoly game, meaning the weights are taken as given. We later propose a sequential game where in the first stage a firm decides whether to be a B Corp or not, or said differently, the weights to put on each leg of the tripod, these weights are endogenously chosen.

one. Endogenous variable People is harder to measure as it has to include some index of the happiness or quality of life of its employees, but also the impact of the firms' activities on its consumers, suppliers and the community in general.[9]

This way, an ordinary A firm is a special case of (1): a firm who sets $\alpha = \beta = 0$. Any B Corp, on the other hand, maximizes (1) subject to high lower bounds on α and β. An A firm can indeed have a positive (or a negative) impact on society and the environment, but usually it comes as a byproduct, i.e. an externality (positive or negative), as they are not part of the objective. For example, at some point the A firm realizes it makes more money by having happier employees and do something about it, but the objective is still profit maximization. [10]

3.1 Different categories of B Corps

This subsection handles the possible different types of B Corps. We assume any B Corp adds constraints to the maximization of (1) which are that all 3 Ps are strictly larger than 0. This can, else, be thought of as all three weights being strictly positive – which boils down to: $\alpha \geq 0$, $\beta \geq 0$ and $\alpha + \beta \leq 1$.

Basically we are assuming B Corps want to stay in business ($\pi \geq 0$) and even if a B Corp's objective is focused on one of the Ps, it does not neglect the other P (as an A Corp commonly does). What brings a firm to the B Movement is what the Behavioral Economics literature calls intrinsic motivation, i.e. the willingness of doing the right thing. Therefore, even the extreme cases below, are not as extreme as an A Corp frequently is.

The first type below is a more balanced one, the other ones are extreme cases. The reader should thus bear in mind an A Corp is also an extreme case ($\alpha = \beta = 0$).

a) Balanced weights

This case encompasses B Corps which assign considerable weight to both Ps: People and Planet. By setting both α and β considerably higher than zero, these B Corps leave little space for Profit in their objective functions (1), at the same time as they do not show a clear preference between their social responsibilities and the environment.

b) People businesses

These are B Corps born to care for People – while not going bankrupt or damaging the environment. They are firms setting α close to 1, while leaving still some space for Planet and Profit in their objective function (1). Alternatively, one can think of these as firms maximizing People subject to $\pi \geq 0$ and Planet ≥ 0.

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[9] B Corps questionnaire – the B Impact Assessment – precisely puts numbers to a company's performance as concerns its social and environmental responsibilities. According to their websites:
"B Corp Certification is the only certification that measures a company's entire social and environmental performance. The B Impact Assessment evaluates how your company's operations and business model impact your workers, community, environment, and customers. From your supply chain and input materials to your charitable giving and employee benefits, B Corp Certification proves your business is meeting the highest standards of verified performance."
https://bcorporation.net/certification. Accessed the 7th April 2019.
"The business world needs comprehensive, credible, comparable impact standards to support a systems change. The B Impact Assessment is the most credible tool a company can use to measure its impact on its workers, community, and environment, and customers. More than 50,000 businesses have used the B Impact Assessment as a free management tool"
https://bcorporation.net/node/39534. Accessed the 7th April 2019.

[10] Obviously, Planet and People can have some non-negligible weight at many A Corps maximization problems, but we take them to be zero without loss of generality.

These firms adopt an intentionally labour-intensive production models, caring for jobs (or quality jobs) and the community around it way more than legally required. Firms with an open hiring model fall within this category.

c) Regenerative businesses

These are B Corps born to save the Planet i.e. regenerate the environment – while not going bankrupt or smashing People. They are firms setting β close to 1, while leaving still some space for People and Profit in their objective function (1). Alternatively, one can think of these as firms maximizing Planet subject to $\pi \geq 0$ and People ≥ 0.

d) Internalizers

This case encompasses firms which barely reach the standards for being a B Corp. They do not care that much for People or Planet but they make it to cancel out their negative externalities on both, while still maximizing profit. In other words, they set $\alpha = \beta = 0$ in (1) but add the constraints Planet ≥ 0 and People ≥ 0 to their maximization problem, which is equivalent in the end to leaving some space for α and β.

These firms are (in economic terms) equivalent to well-regulated A firms. If every A Corp were regulated in such a manner that it could cause no harm to People or to Planet, every A Corp would be a B Corp within this category of internalizers.[11]

3.2 Different categories of B Corps in the real word

In this section we present the results of a survey with B Corps and an analysis of the answers to the B Impact Assessment of existing B Corps and of firms freely answering that questionnaire online and submitting it to the B Lab. We use both methodologies with the same aim: to confirm the existence of B Corps falling in all categories of the previous subsection above and check if possibly more categories should be included. Moreover, we wanted to put numbers in each category according to its prevalence among existing B Corps.

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(By December 2019, we are still struggling to have access to those data and authorization to send questionnaires. So this subsection will possibly be withdrawn.)

4. Industrial Organization of B Corps

This section presents some basic Industrial Organization models to deal with the competitive skills of B Corps as compared to A Corps, the equilibrium achieved and how it compares to the desired Pareto efficient outcome – and thus how public policy can intervene.

We start with a basic and powerful result, and its corollaries, based on a basic Bertrand setting.[12] One interesting feature of these first results is that they hold for any type of B Corps (i.e. all of the ones in the previous section).

[11] There is a broad literature in Economics of Regulation on the best ways to regulate firms, given information asymmetries between the Regulator and regulated firms, the costs and risks of regulation itself etc. Among the instruments to achieve null carbon impact there can be quotas and fines or rights to pollute, for example, among others. In this paper we skip this discussion on the best way to regulate and assume the government can do it.

[12] The reader unfamiliar with basic Industrial Organization should refer to Shy (1995).

4.1 Results in a basic Bertrand setup

In this subsection, we explore the introduction of B Corps in highly competitive markets. By this we mean a homogeneous goods market where capacity does not play a role and firms set prices simultaneously i.e. the basic Bertrand setup. In such setting, as is widely known, the pure-strategy Nash equilibrium is the lowest-cost firm to set its price at one cent below the marginal production cost of the second lowest-cost firm and serve the whole market. In (homogenous goods) Bertrand, if more than one firm has the lowest cost, at equilibrium they price at marginal cost and share the market equally. In any circumstance – one or more firms having the lowest marginal cost – a Bertrand equilibrium replicates the competitive equilibrium and is thus Pareto efficient.

We shall move now to our first result.

Proposition 1: If being a B Corp provides a cost disadvantage, no B Corp can survive in a highly competitive market.

Being a B Corp means a firm imposes on itself extra constraints as refers to the values of α and β in (1) – or analogously, on the size of Planet and People in (1). This means a B Corp spends resources in being extra precautious as concerns its employees, and consumers, and the community, and in not polluting, and recycling most of its waste and discarding properly the remainder etc. In principle, thus, a B Corp necessarily has to bear a higher production cost *vis-à-vis* an A Corp. This implies – *a priori* – that at equilibrium $p_A = c_B - \varepsilon$ and thus market shares are $s_A = 1$ and $s_B = 0$ in a baseline Bertrand model.

Corollary 1: If a B Corp survives in a highly competitive market, it is because being B increases profit.

Economic theory predicts a high cost firm does not survive in a Bertrand setting. If a B Corp is viable in such a setting, it has to be because putting some considerably positive weight on People and Planet (α >> 0 and β >> 0 in (1)) turns out to somehow make it more competitive, not the opposite, as is usually claimed.

The B Corps have to face some benefit *vis-à-vis* A Corps – such as a steeper learning curve, or simply lower cost (if using organic techniques rather than chemicals turns out to be cheaper, for example[13]) or a higher demand curve, meaning B Corps' consumers have higher willingness to pay. In any case, no matter the theoretical or empirical justification for such, there has to be some relative advantage for a B Corp in a Bertrand setting, or B Corps simply do not exist at equilibrium in a typical Bertrand setting.[14] [15]

Corollary 2: If a B Corp survives in a highly competitive market, it is because A Corps face some difficulty in realizing the (profit) advantage of being a B Corp.

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[13] A pivotal project of Embrapa Paraná, in the South of Brazil, for example, has reduced an average of 4 applications of fungicide per crop of soya beans to an average of 1.5 just by collecting and measuring the incidence of fungal spores in the air and spreading the news among producers of the non necessity of applying fungicides that week. Costs have reduced by more than 10%. Reference: https://g1.globo.com/economia/agronegocios/globo-rural/noticia/2019/04/07/programas-reduzem-uso-de-agrotoxicos-e-dano-ambiental-e-geram-economia-para-produtor.ghtml (access in 3rd December 2019).

[14] This is definitely not the case in a Cournot setting, where firms choose quantities simultaneously, or equivalently , as shown by Kreps and Scheinkman (1983),when under some conditions they choose prices simultaneously after having chosen binding capacities.

[15] This seems to be in line with the empirical evidence. Paro et al. (2019) claim the humanized firms achieve on average 6 times more profit for each unit of capital invested in the long run and at least twice in shorter periods, when compared to ordinary firms (they compared to the average of the 500 largest Brazilian firms).

As stated in Corollary 1, a B Corp only survives in a Bertrand setting if caring for People and Planet makes it more competitive (for whatever reason). However, if it is so, why wouldn't every firm do so?! There has to be some disability, disadvantage or lack of some skill (or for example knowledge or information) putting the A Corp in a situation not to realize it could care for People and Planet (just like a B Corp) and earn more money by doing so. This is a straight application of the famous Revelation Principle.

As a consequence, A Corps must be short-sighted (bounded rationality), or lack access to proper information (asymmetric information), or have some cognitive limitation (or some other Behavioural Economics justification). In other words, in a Bertrand setting, the *a priori* higher costs of being B have to be compensated by some advantage of B Corps, and there has to be some limitation for A Corps to realize that – or B Corps go out of business easily in a tightly competitive market. This brings us to another corollary on Bertrand equilibrium.

Corollary 3: Most B Corps produce differentiated products/services.

Behaving as a B Corp, when it is not *per se* profitable, is thus only viable in markets where competition is not that fierce, i.e. not as in the Bertrand basic setting with homogeneous goods. There are many possible theoretical justifications for that, but the simplest one is that goods and services B Corps provide are not homogenous, when compared to A Corps' goods. Two Chilean enterprises provide an intuition for this claim: Emiliana produces organic wines while Carnes Naturales produce premium organic beef. They have very high and rigid planet-friendly standards – higher than required for a B Corp – and both hold many other certifications, such as organic, fair trade etc.

Said differently, Corollary 3 claims that consumers of B Corps products or services do not only care for price, but also quality, understood as the product's impact on climate change and/or the chemicals the consumer will swallow.[16]

Before presenting our last corollary on the Bertrand basic setting, we shall present an underlying result that looks more like an assumption, but can be easily derived.

Lemma 1: Efficiency might require (or not) every firm to be a B Corp.

We assume a benevolent social planner, i.e. one who has no private interest and thus maximizes social welfare. But how do we define social welfare?! We shall assume our benevolent social planner cares more for People and the Planet than for Profits.

The government by assumption maximizes (1) plus consumer surplus (or happiness or well-being, as consumers utility is also derived from other dimensions than just consuming a good or service). The government can attach zero weight to profits or any small weight. If it is zero (meaning for a given social planner $\alpha + \beta = 1$, it is straightforward that every firm should be a B Corp for a Pareto outcome.[17]

However, for any small but strictly positive weight attached to Profits in the social welfare function, it might be the case that welfare is maximized by every firm being a B Corp or not. Welfare might be higher by having some firms remaining A Corps and maximizing Profit (while polluting and despising suppliers, customers and employees), while others are B Corps of the limit types: People businesses and regenerative businesses (types b and c in 3.1).

[16] Other anecdotal pieces of evidence of this Corollary 3 in practice can be found in stories of firms presented in the official B Corps website and some others were presented in recent events the authors here have attended.

[17] This is equivalent to having no B Corp at all, and is exactly what the B Movement has in mind when stating in its website: "Our ultimate vision is that one day there will be no B Economy—just a global economy that aligns its activities toward achieving our common purpose of a shared and durable prosperity for all".

In other words, cross-subsidization in terms of the impact on society and the environment can possibly increase welfare as a whole.[18]

We can now move on to our last result, which derives from Lemma 1.

Corollary 4: Highly competitive markets might not provide efficient outcomes.

Highly competitive markets do not provide Profits in general. One shall think of a zero-profit equilibrium as in a Bertrand basic setting. If it is the case that the social planner attaches some positive weight to profits in its welfare function to be maximized, then fierce competition might decrease total welfare.

In a setting where being B increases profit that might be reversed.[19]

5. Concluding Remarks

The aim of this article was to set the foundations of a research agenda on the Economics of B Corps, an interesting and important movement that Economics has not yet researched.

This paper reviewed the existing literature in Economics departing from the profit-maximizing firm by assumption. We then provided the basic setup for building a Firm Theory for firms which do not only aim at profit maximization, which for simplicity we call B Corps, relating to a strong and increasing movement, the B Economy.

Finally we turned to the Industrial Organization of B Corps, starting with a basic Bertrand setting with *a priori* homogenous goods. Even without explicitly modelling much, we were able to find intuitive results based on the existing theory, adapted to incorporating B Corps (the ones whose Firm Theory was built in the beginning of this paper).

Future research will explicitly model some features exposed here: consumers' perception about goods quality, social planner's different possible welfare function and its consequences, equilibrium and Pareto outcome in a setting with heterogeneous firms etc.

Future research shall also explore stylized facts to assume and test specific functional forms for the objective functions of B Corps and what this implies in terms of outcomes, efficiency and recommendations for public policy.

[18] Future research will explicitly model and obtain that possibility at equilibrium.
[19] Future research will explicitly model and obtain that possibility at equilibrium.

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