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DOES MARKET SELECTION MECHANISM MATTER IN PRESENCE OF OPPORTUNITY COSTS?

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Abstract

The literature has always considered that the natural selection mechanism will eliminate all inefficient firms from the market and that only efficient ones will survive which will increase the aggregated efficiency of the market. By assuming that firms differ not only by their efficiency levels but by their opportunity costs too. This paper argues that the selection mechanism will lead the most efficient firms to exit and the inefficient ones to persist in the equilibrium, which may explain the persistence of inefficient firms observed in many empirical studies.

Keywords: market selection, firm efficiency, opportunity costs**.**
JEL Classification: L1. L2. D2. D4. O4.

1. INTRODUCTION

The literature has always considered that the natural selection mechanism will eliminate all inefficient firms from the market and that only efficient ones will survive which will increase the aggregated efficiency of the market. Indeed, many theoretical models such as those of Jovanovic (1982), Ericson et Pakes (1989), Hopenhayen (1992,1993), Jovanovic and MacDonald (1994), Melitz(2003), Asplund and Volker (2006) and many others showed a positive effect of the firm selection mechanism on the industry aggregate efficiency.

All these models assume that firms differ by their efficiency levels (measured by the marginal cost of production) but have the same reservation value (or the same opportunity cost). The firm decides to exit the market when its profit is below its opportunity cost which is nil in most of the above models. This implies that inefficient firms – having the lowest profits- are less likely to survive than the

efficient one. As a consequence, the mechanism of firm selection increases the market aggregate efficiency.

The objective of this paper is to show that this conclusion is excessive since in the reality the opportunity cost is not the same for all firms. For this reason Gamal Atallah (2006) proposed a theoretical selection model where firms' opportunity costs are heterogeneous. The study shows that in some cases the entry of inefficient firms may provoke the exit of efficient ones because they have higher reservation values. However the model is unable to determine explicitly neither the number of exiting firms nor the effect of exit on the industry aggregate efficiency.

The effectiveness of the firm selection mechanism based on the firms' efficiency levels has also been discussed in some others recent empirical studies. For example, Takanbu et al. (2005) argues that the selection mechanism is ineffective during financial crises. It shows that the exit of firms is not due to their inefficiency but to the incapacity of the banking system in crisis to finance them. An other example is Musso et al. (2006) which finds that young new french firms, which are more productive and profitable than incumbent firms, cannot survive. The study of Allan, C. (2007) concludes that very high fixed costs may explain the persistence of inefficient firms on the market, even if they make large financial losses. Fortune and Mitchell (2012) demonstrates that managerial and functional capabilities have heterogeneous effects on firms selection processes. Luca (2018) shows that an increase in the minimum wage rises the likelihood of firm exit in the restaurant industry. Finally, Marvin et al. (2017) proves that potential for resource redeployment affects market exit by multi-business firms. Since a diversified firm may be able to redeploy its resources back into related businesses.

We adopt the same assumption as in Gamal Atallah (2006) namely the heterogeneity of opportunity costs among firms. In our model firms differ not only by their efficiency levels but by their opportunity costs too. Indeed, we have two types of firms: efficient firms using a sophisticated technology and inefficient firms having obsolete technology. We assume that the opportunity cost of the efficient firms is higher than that of the inefficient firms. This assumption may be justified by the fact that the sophisticated technology remains more efficient and profitable than the obsolete one if used in other activities. By contrary to Gamal Atallah (2006) who proposes an oligopolistic competition model of firm entry and exit, we develop a monopolistic competition model with firm exit but no entry. We develop a two-periods model. During the first period, both efficient and inefficient firms decide to exit or not the market, by comparing their profits to their own reservation values (opportunity costs). Exit behavior will directly affect the market structure and aggregate efficiency during the second period.

One of the main results of our analysis is that the firm's efficiency level is not the unique factor on which the selection mechanism is based. Indeed, we show, contrarily to the studies cited above, that competition can eliminate the most efficient firms, not because their profits are low, but rather because they have higher reservation values than those of inefficient firms. Consequently, both types of firms will coexist in the market which may explain the persistence of inefficient

firms observed in many empirical studies[1]. The paper is organized as follows. In the second section we present the theoretical framework. In the third section we explicitly models the exit behaviors of both types of firms and determine the number and the nature of exiting firms. The fourth section concludes.

2. THE THEORETICAL FRAMEWORK

We consider an economy composed of *n* monopolistic competitive firms. We have two types of firms: efficient firms, of type '*h*'; and inefficient firms of type '*o*'. Firms of the first type '*h'* use a sophisticated technology allowing them to produce with a low marginal cost noted by $c^h > 0$. The firms of the second type '*o*' have an obsolete technology and a higher marginal cost $c^o > 0$ with $c^o > c^h$.

We assume that each firm has its own opportunity cost. In particular, an efficient firm has a higher opportunity cost (or also a reservation value) than that of the inefficient firm. This assumption is justified by the fact that the sophisticated technology used by the efficient firm remains more efficient and profitable than the obsolete technology when used in other activities. Firms are ranked from 0 to *n* according to their opportunity costs in a way that firms having low ranks are those with high reservation values. This ranking allows us to determine the number of exiting firms among efficient ones noted by n^{sh} and the number of exiting inefficient firms n^{so}.

2.1 THE CONSUMERS

The number of identical consumers in the economy is normalized to one. Their preferences for the varieties can be described by the following inter temporal utility function.

$$U = \int_0^{\infty} e^{-rt} \log C_t \, dt \tag{1}$$

where r is the discount rate, and C_t is the consumption index given by:

$$C_t = \left(\int_0^n y_{j,t}^{\alpha} \, dj \right)^{1/\alpha} \tag{2}$$

Where $y_{j,t}$ represents the quantity of variety *j* demanded by the consumer. α is a parameter between 0 and 1, and $\sigma = 1/(1-\alpha)$ denotes the substitution elasticity between the different varieties. The aggregated demand functions y_t^o et y_t^h, respectively for type *o* and *h* varieties are given by the following iso-elastic function

$$y_t^o = \frac{p_t^{o\ 1/(\alpha-1)}}{n_t^o\, p_t^{o\ \alpha/(\alpha-1)} + n_t^h\, p_t^{h\ \alpha/(\alpha-1)}}\, E \tag{3a}$$

$$y_t^h = \frac{p_t^{h\ 1/(\alpha-1)}}{n_t^o\, p_t^{o\ \alpha/(\alpha-1)} + n_t^h\, p_t^{h\ \alpha/(\alpha-1)}}\, E \tag{3b}$$

where E exogenous and constant, represents the consumer expenditure in the good varieties and p_t^o and p_t^h are the prices of type *o* an type *h* varieties, respectively. To simplify this two periods model we will drop the index *t* for the first period and represent the second period by '+1'.

2.2. THE FIRM

Each firm produces one different variety j . Thus the number of firms in the market is equal to the total number of varieties, n . We assume, as in most of selection models, that all firms have the same fixed cost. The total cost of production of efficient (type '*h'*) and inefficient (type '*o'*) firms are noted respectively by $CT^{\,h}$ and $CT^{\,o}$, and given by:

$$CT^{\,h} = c^h\, y^h + F \tag{4a}$$

$$CT^{\,o} = c^o\, y^o + F \tag{4b}$$

where c^h et c^o are the marginal -constant- costs of type '*h'* and '*o'* firms

respectively y^h et y^o are the quantities of varieties produces respectively by efficientes '*h'* and inefficientes '*o'*firms . the fixed cost, F is identical for all firms. The respective profits of type '*h'* and 'o' firms noted by π^h et π^o are given by the following expressions:

$$\pi^h = p^h\, y^h - c^h\, y^h - F \tag{5a}$$

$$\pi^o = p^o\, y^o - c^o\, y^o - F \tag{5b}$$

where p^h and p^o indicate respectively the prices of type '*h'* and '*o*' varieties.

2.3. THE FIRM'S PROGRAM

The firm decides about the price of its variety which maximizes its profit under the demand function constraint given by Equation (3). The maximization condition gives the optimal prices for type '*o*'and '*h*' firms which are respectively:

$$p^o = \frac{c^o}{\alpha} \qquad \text{and} \qquad p^h = \frac{c^h}{\alpha} \tag{6}$$

The profit of these two types of firms rewrite as follow:

$$\pi^o = \frac{E(1-\alpha)\hat{c}^o}{n^o \hat{c}^o + n^h \hat{c}^h} - F \tag{7a}$$

$$\pi^h = \frac{E(1-\alpha)\hat{c}^h}{n^o \hat{c}^o + n^h \hat{c}^h} - F \tag{7b}$$

where $\hat{c}^o = (c^o)^{\alpha/\alpha-1}$ and $\hat{c}^h = (c^h)^{\alpha/\alpha-1}$

Let n^h et n^o , respectively, the numbers of efficient and inefficient firms which are exogenous during the first period.

3. THE NATURE AND THE NUMBER OF EXITING FIRMS

Whatever its level of efficiency, each firm decides to exit the market at the end of the first period if its profit during this period is less than its opportunity cost (or also its reservation value). Introducing into the model an additional factor of heterogeneity within firms, in this case the opportunity cost, will allow us to show the limits of the natural selection argument based on efficiency levels. it will be shown that both efficient and inefficient firms can leave the market, depending on their opportunity costs.

Assumption 1:

We assume that firms are ranked from 0 to n in decreasing order of their opportunity costs, noted v_j . Firms closest to 0 have a higher opportunity cost. This relation can be translated by the following equation:

$$v_j = A_j \bar{v} \tag{8}$$

Where $\bar{v}$ is the average opportunity cost of firms and A_j is a positive parameter, continuous and strictly decreasing in the rank j of the firm. Thus, the higher the rank of a firm j, the lower the parameter A_j, and the lower the opportunity cost of that firm. We adopt the following specification[2] for the parameter A_j :

$$A_j = 1 + \varepsilon\left(\frac{1}{2} - \frac{j}{n}\right) \tag{9}$$

where ε is a parameter between 0 and 2 measuring the dispersion of the opportunity costs between firms. Note that when ε tends to zero, A_j converges to 1. In this case, all firms have the same opportunity cost as given by the average opportunity cost, $\bar{v}$. Figure 1 presented below gives us a better understanding of the ranking logic of firms.

3.1. EXIT BEHAVIOR OF INEFFICIENT FIRMS

A firm j of type '*o*' is indifferent between exiting and staying in the market when its profit equals its opportunity cost. This situation is represented by the following relation:

$$\pi^o = v_j \tag{10}$$

Replacing v_j given by relations (8) and (9) in Equation (10), one can write the expression of the threshold rank, noted j^o, (which corresponds to the opportunity cost threshold under which the inefficient firm decides to exit the market) as follow :

$$j^o = \frac{n}{2\varepsilon\bar{v}}\left[\bar{v}(2+\varepsilon) - 2\pi^o\right] \tag{11}$$

Thus the number of inefficient firms exiting the market, noted by n^{so}, depends on this rank threshold j^o (see graph1 below). Three configurations are feasible:

Case (a) : $j^o \le n^h$ equivalent to : $\pi^o \ge \hat{\pi}$, où $\hat{\pi} = \bar{v}\left(1 + \frac{\varepsilon(n-2n^h)}{2n}\right)$.

In this case the type '*o*' firm's profit is too high. No firm of this type exits the market. Thus $n^{so} = 0$. This situation occurs when the type *o* firms have a high efficiency level ,i.e. $\hat{c}^o$ is high[3] .

Case (b): $n^h \leq j^o \leq n$, equivalent to : $\hat{\pi} \geq \pi^o \geq \underline{\pi}^o$, where $\underline{\pi}^o = \bar{v}\dfrac{(2-\varepsilon)}{2}$.

Thus: $n^{so} = j^o - n^h \geq 0$. In this case, only a part of the inefficient firms whose profit is lower than the reservation value, decides to leave the market. The number of these exiting firms is then given by:

$$n^{so} = \frac{n}{2\varepsilon\bar{v}}\left[\bar{v}(2+\varepsilon) - 2\pi^o\right] \geq 0 \qquad (12)$$

Case (c): $j^o \geq n$, which implies that : $\pi^o \leq \underline{\pi}^o$. thus $n^{so} = n^o$.

In this case, the profit of a type '*o'* firm is very low to the point where all inefficient firms decide to exit the market. Finally, it follows from the three configurations above that the number of exiting inefficient firms is as follows:

$$n^{so} = \begin{cases} 0 & if \quad j^o \leq n^h \quad \Leftrightarrow \quad \pi^o \geq \hat{\pi} \qquad (a) \\ \dfrac{n}{2\varepsilon\bar{v}}\left[\bar{v}(2+\varepsilon) - 2\pi^o\right] & if \quad n^h \leq j^o \leq n \quad \Leftrightarrow \quad \hat{\pi} \geq \pi^o \geq \underline{\pi}^o \qquad (b) \\ n^o & sif \quad j^o \geq n \quad \Leftrightarrow \quad \pi^o \leq \underline{\pi}^o \qquad (c) \end{cases} \qquad (13)$$

The condition $\pi^o \geq \hat{\pi}$ is equivalent to:

$$\hat{c}^o \geq \frac{\hat{c}^h\, n^h\left[F + \bar{v}\left(1 + \dfrac{\varepsilon(n-2n^h)}{2n}\right)\right]}{E(1-\alpha) - n^o\left[F + \bar{v}\left(1 + \dfrac{\varepsilon(n-2n^h)}{2n}\right)\right]}$$

This means that when the efficiency level of type 'o' firms is very high, none of these firms exit the market.

3.2 EXIT BEHAVIOUR OF EFFICIENT FIRMS

The exit decision of efficient firms follows the same reasoning substantiated above. Indeed, a firm of type '*h*' is indifferent between staying and leaving the market if its profit is equal to its opportunity cost. This situation is represented by the following relation:

$$\pi^h = v_j \qquad (14)$$

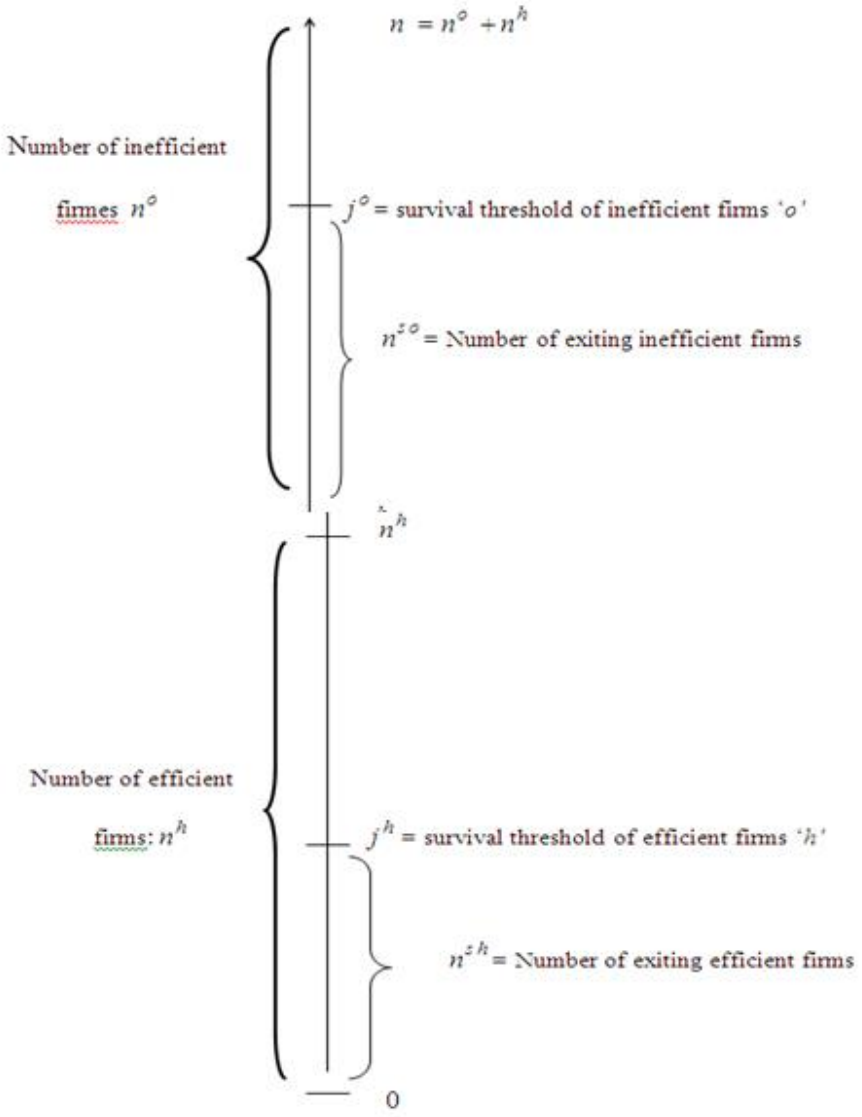

Figure 1. *Ranking of firms according to their opportunity costs*

Replacing the expression of v_j by relations (8), (9) in equation (14), gives the expression of the threshold rank, j^h, under which an efficient firm decides to leave the market.

$$j^h = \frac{n}{2\varepsilon\bar{v}}\left[\bar{v}(2+\varepsilon) - 2\pi^h\right] \qquad (15)$$

The number of efficient firms that exit at the end of the first period, denoted by n^{sh} depends on this threshold rank (see Figure 1). Here again, three scenarios should be distinguished:

Case (a'): $j^h \leq 0$, which is equivalent to: $\pi^h \geq \bar{\pi}^h$, with $\bar{\pi}^h = \bar{v}\dfrac{(2+\varepsilon)}{2}$.

The profit of efficient firms is quite high, none of these firms decides to leave the market. So, $n^{sh} = 0$. This situation occurs when their marginal cost c^h is very low, i.e., when their technology is very sophisticated.

Case (b'): $0 \leq j^h \leq n^h$, which is equivalent to: $\bar{\pi}^h \geq \pi^h \geq \hat{\pi}$ with $\hat{\pi} = \bar{v}\left(1+\dfrac{\varepsilon(n-2n^h)}{2n}\right)$

We obtain: $n^{sh} = j^h \geq 0$. Which means that only efficient firms whose profit is lower than the reservation value decide to leave the market. The number of these firms is given by:

$$n^{sh} = \frac{n}{2\varepsilon\bar{v}}\left[\bar{v}(2+\varepsilon) - 2\pi^h\right] \geq 0 \tag{16}$$

Case (c'): $j^h \geq n^h$, equivalent to: $\pi^h \leq \hat{\pi}$. In this case: $n^{sh} = n^h$.

Thus, in this case where the profit of the type '*h*' firm is very low, all the firms of this type prefer to leave the market. Finally, the number of exiting type '*h*' firms is given as follows:

$$n^{sh} = \begin{cases} 0 & si \quad j^h \leq 0 \quad \Leftrightarrow \quad \pi^h \geq \bar{\pi}^h \qquad (a') \\ \dfrac{n}{2\varepsilon\bar{v}}\left[\bar{v}(2+\varepsilon) - 2\pi^h\right] & si \ 0 \leq j^h \leq n^h \ \Leftrightarrow \ \bar{\pi}^h \geq \pi^h \geq \hat{\pi} \qquad (b') \\ n^h & si \quad j^h \geq n^h \quad \Leftrightarrow \quad \pi^h \leq \hat{\pi} \qquad (c') \end{cases} \tag{17}$$

Figure 2 below summarizes the numbers of exiting firms of both types, based on profits π^h and π^o. By comparing these numbers, the nature of the selection effect can be determined. The profits of the type '*h*' firms, π^h, are on the x-axis, and the profits of the type '*o*' firms, π^o, are on the y-axis. We draw the lines corresponding to the threshold profits levels given by $\pi^h = \hat{\pi}$, $\pi^h = \bar{\pi}^h$,

$\pi^o = \hat{\pi}$ and $\pi^o = \underline{\pi}^o$. The expressions (7a) and (7b) imply a linear relation between the profits π^h and π^o which is written as follows:

$$\pi^o = \frac{\hat{c}^o}{\hat{c}^h}(\pi^h + F) - F$$

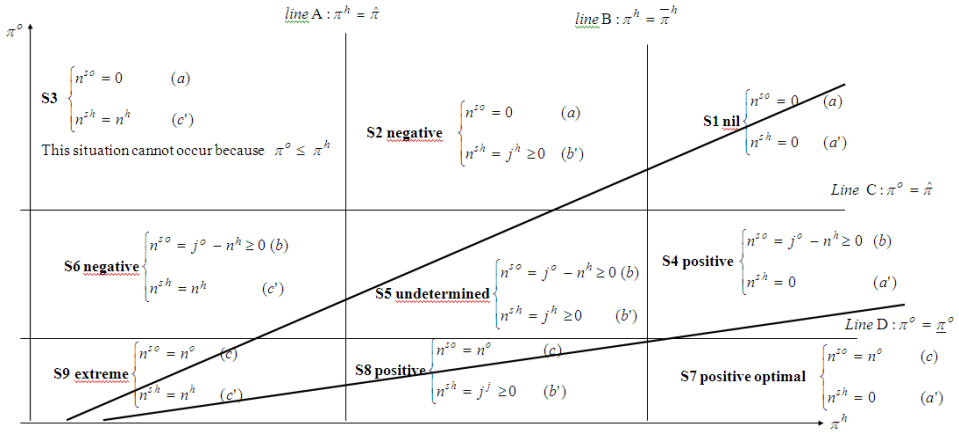

Figure 2. *Determination of the numbers of exiting efficient and inefficient firms*

The different possible situations to be studied must respect this relation and be situated on this line. Finally, knowing that there are several possible lines according to the values of $\hat{c}^o$ and $\hat{c}^h$, and that the profits follow the same order as the reservation values $\pi^h > \pi^o$ and $v^h > v^o$, we obtain nine different possible situations that are grouped together in Figure 1. This figure shows that in case (b) where $\hat{\pi} \ge \pi^o \ge \underline{\pi}^o$ (area delimited by lines C and D) only few inefficient type *o* firms whose reservation value, v_j, is higher than its profit π^o decide to leave the market. The other firms of the same type remain active. In this case, if the profit of an efficient firm (type h) is quite high (), all the firms of the same type prefer to remain in activity (Situation S4).

In this case, the exit mechanism of firms leads to an increase in the aggregate efficiency (positive selection effect) since the economy is found in the second period with fewer inefficient firms while keeping the same number of efficient firms. Similarly, in case (c) (area below the line D), the profit of inefficient firms is sufficiently low ($\pi^o \le \underline{\pi}^o$), to the point where all the inefficient firms leave the market ($n^{so} = n^o$). During the second period, the economy is composed exclusively of efficient firms (situations S7 and S8), which

implies an increase in aggregate efficiency. In the situation (S2), all the inefficient firms survive ($\pi^o \geq \hat{\pi}$) while a few efficient firms leave the market ($\hat{\pi} \leq \pi^h \leq \bar{\pi}^h$). In this situation, the selection mechanism of the firms will decrease the market aggregate efficiency (negative selection effect). Indeed, the economy is found in the second period with fewer efficient firms while keeping the same number of inefficient firms. Such a negative effect can also occur in situation S6 where some inefficient firms leave the market ($n^{so} = j^o - n^h$) while all efficient firms do so ($n^{sh} = n^h$). It follows that in the following period the economy is composed only of inefficient firms.

Finally, in the situation (S5) where $\hat{\pi} \geq \pi^o \geq \underline{\pi}^o$ and $\bar{\pi}^h \geq \pi^h \geq \hat{\pi}$ both efficient and inefficient firms leave the market simultaneously ($n^{sh} = j^h$ and $n^{so} = j^o - n^h$, respectively). In this situation, the net effect of the firms exit process on the aggregate efficiency cannot be determined analytically. It depends on the values of the parameters and the exogenous variables of the model.

As a conclusion, the model reveals that firms' exit process increases the aggregate efficiency (positive selection effect) in three out of nine cases (S4, S7 and S8) and reduces it (negative effect) in two cases (S2 and S6). Such a result contradicts that of the standard selection models (Jovanovic (1982), Ericson and Pakes (1989), Hopenhayen (1992,1993), Jovanovic and MacDonald (1994), Melitz (2003), Asplund and Nocke (2006) ...) according to which only efficient firms survive while inefficient firms are eliminated by competition.

Indeed, as soon as we assume that efficient firms have a higher reservation value than inefficient ones, we must admit that a part (non-negligible in certain cases) of inefficient firms will persist in the economy. In other words, it can be said that in certain situations (S4, S7 and S8), efficient firms leave the market while inefficient ones survive. So, it is wrong to conclude anything about the role of so-called 'natural selection' mechanism in increasing aggregate efficiency since in our model, a firm with a high marginal cost can stay on the market simply because of its low reservation value.

This result matches that of Gamal Atallah (2006) who has shown that in some cases the entry of inefficient firms causes the exit of efficient firms which reduces the aggregate efficiency. Indeed, it shows that when the relationship between the profit of the firm and its reservation profit is very strong or also when the cost of exiting the market is very high, the exiting firms are more efficient than the entrants and vice versa.

4. CONCLUSION AND RECOMMENDATIONS

This paper questioned the role of the natural selection mechanism of firms in increasing aggregate efficiency under the assumption of opportunity costs heterogeneity. This question has been studied in a context of monopolistic competition where each efficient and inefficient firm decides simultaneously to leave the market if its profit is lower than its own opportunity cost.

Our simple and original theoretical formalization made it possible to show that the selection mechanism is not always effective since the exit of the firms does not improve, in all cases, the aggregate efficiency. Indeed, there are some cases where efficient firms leave the market because their opportunity costs are high. In contrast, inefficient firms persist simply because of their low reservation values.

REFERENCES

Allan, C. (2007). Productivity dispersion and plant selection in the ready-mix concrete industry. *Economics Department NYU Stern Mars 2007*.

Atallah, G. (2006). Opportunity costs, competition, and firm selection. *International Economic Journal, 20*(4), 409-430.

Luca, D. L., & Luca, M. (2018). *Survival of the fittest: The impact of the minimum wage on firm exit*. (Harvard Business School Working Paper No. 17-088). Available at SSRN: https://ssrn.com/abstract=2951110.

Dhrymes, P. J (1991). *The structure of production technology productivity and aggregation effects*. (Discussion Paper CES 91-5). Center for Economic Studies, U.S. Bureau of Census, Washington, DC.

Dwyer, D. (1997). *Productivity races: Are some productivity measures better than others?*. (Working Paper, CES 97-2). Center For Economic Studies.

Ericson, R., & Ariel, P (1989). *An alternative theory of firm and industry dynamics*. (Discussion Paper 445). Columbia University, September 1989.

Fortune, A., & Mitchell, W. (2012). Unpacking firm exit at the firm and industry levels: The adaptation and selection of firm capabilities. *Strategic Management Journal, 33* (7), 794-819.

Gôtz, G., (1999). Strategic timing of adoption of new technologies under uncertainty: A note. *International Journal of Industrial Organization, 18*, 369-379.

Hopenhayn, H., (1992). Entry, exit and firm dynamics in long run equilibrium. *Econometrica, 60*(5), 1127-1150.

Jovanovic, B., & G. Macdonald, G.M., (1994). Competitive diffusion. *Journal of Political Economy, 102*(1), *24-52*.

Jovanovic, B., (1982). Favorable selection with asymmetric information. *The Quarterly Journal of Economics, 97(3), 535-539*.

Marvin, B. L, Gwendolyn, K., & Timothy B. F. (2017). Entry, exit, and the potential for resource redeployment. *Strategic Management Journal, 38*(3).

Musso, P., Bellone, F., Quere, M. & Esta, L., (2006). Productivity and market selection of french manufacturing firms in the nineties. *Revue de L'OFCE, 97,* 319-349.

Rogerson, R., & Hopenhayn, H. (1993). Job turnover and policy evaluation: A general equilibrium approach. *Journal of Political Economy, 101*(5), 915-38.

Takanobu, N., Kozo, K., & Kiyohiko, G. N, (2005). Does the natural selection mechanism still work in severe recessions? Examination of the Japanese economy, *Journal of Economic Behavior and Organization, 58,* 53-78.

Volker, N., & Asplund, M. (2006). Firm turnover in imperfectly competitive markets. *Review of Economic Studies, 73*(2), 295-327.