



## ECONOMIC ANALYSIS OF DECEPTIVE COUNTERFEITING IN CONGO BRAZZAVILLE

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### **ABSTRACT**

*Deceptive counterfeiting is pernicious because what is at stake for the counterfeiter, producer or seller is to manufacture or to sell a counterfeit product - bogus-bogus, bogus-genuine, genuine-bogus, making the consumer believe that it is a genuine product. For that purpose, the counterfeiter provides imperfect information on the goods' features.*

*The purpose of this paper is to figure out the reason why the counterfeiter incurs the risk of deceiving a consumer in one hand, and in another, that of being caught by the police.*

*We first show that the counterfeiter is at neutral risk on a market which is favorable to deceptive counterfeiting. Then we show that Congo, being a country that imports manufactured products essentially from well-known counterfeiting countries, is a territory within which the market failure or weakness is expressed by quality degradation because of the abundance of low-quality products. Such weakness is linked to the high level of poverty of Congolese populations. And finally, from a survey carried upon a sample of students in Congo, we have identified - through the principal components analysis with varimax rotation - two main factors that determine the deceptive counterfeit offer.*

**Key words:** Counterfeiting, consumer, imperfect information, goods, Congo-Brazzaville, quality, neutral risk, market, principal components analysis with varimax rotation.

## 1. INTRODUCTION

The concept of counterfeiting is polymorphic in the extent that it clothes a legal and economic dimension (Waruself, 2011).

**In a legal context**, counterfeiting is defined in line with intellectual property. Legal property is made up of two branches of law:

- Intellectual property that includes patents, brands, designs and models ;
- Literary and artistic property that includes copyrights and other relating rights.

Counterfeiting is an approach which is prejudicial or detrimental to intellectual property. Counterfeiting is analyzed in line with the right of intellectual property: if there is no intellectual property, one cannot talk about counterfeiting (Chavanne and Burt, 1993). According to provisions from the Code of Intellectual Property (CPI), it is possible to distinguish two types of counterfeiting : counterfeiting by reproduction and counterfeiting by imitation (Maitre and Perrino , 2007 ; D’Astous and Gargouri , 2001 ; Krémer and al., 2008):

- Reproduction counterfeiting which is either “the use or apposition of a reproduced mark or brand when it has to do with products or services which are similar to those officially registered”, or “absolute identity in signs, similarity between products and services and a risk of confusion by the consumer”. Reproduction counterfeiting tries to offer a product or a bogus whose external aspect has a close resemblance to the genuine product, with actually a fake contents : that is a real fake, a really forged product or fully counterfeit;
- Imitation counterfeiting that matches the genuine in case “either the counterfeiter must have reproduced an element from the registered mark, or the products concerned are identical or similar, and there must then be a risk of confusion resulting from these two elements”. Imitation counterfeiting borrows from the genuine product some of its features – there is a dash of genuine in the bogus. That is a genuine-bogus product.

It is interesting to recall this statement by Roudaut (2011): “The fully counterfeit product is entirely bogus (rough or approximate copy), the bogus-genuine is a bogus manufactured with the genuine, and the genuine-bogus might be confused with the genuine but it is a bogus (« authentic » copy)”

There is deceptive counterfeiting when a consumer thinks that he is buying a genuine product instead of a bogus one. On that matter, Danand (2009) recalls some legal facts: « apposing a pastille so as to mask the brand, obliterating the maker's mark, removing the label or packaging of origin for another different packaging, maintaining the maker's mark on a product that has been subject to reparation or transformation; delivering a product or service other than the one expected, is substitution of the genuine product for another one without the knowledge of the consumer.

The consumer has got imperfect information on the quality of the product. Deceptive counterfeiting is therefore something we are passively subject to, as it is unwanted (Grossman and Shapiro, 1988a; Bloch and al., 1993; Le Roux and al., 2006).

**Economically speaking**, counterfeiting is related to goods. We have considered three types of goods: research-based goods, experience-based goods and trust-based goods (Nelson, 1970; Darby and Karni, 1973; Coestier and Marette, 2004). Based upon products' characteristics, this classification makes it possible to establish a link between imperfect information given by the counterfeiter or the seller on the product's characteristic and the consumer who thinks that he is buying a genuine whereas it is rather a bogus product. Deceptive counterfeiting is then related to the features of characteristics of a good that may be: bogus-bogus, bogus-genuine or genuine-bogus.

### **1.1. Research-based goods**

Research-based goods can be defined as “products that can totally be assessed before any purchase by using pieces of information such as specifications or data sheets, trade press, mouth-to-ear information or thorough visual scanning of the product prior to using it” (Jourdan, 2001).

We thus talk about a research-based good when the consumer is capable of assessing both its quality and value before the purchase and the use.

The characteristics of the product are observable before the purchase or consumption: the price, the color, the type or variety, the size, the brand; etc.

In the context of research-based goods, counterfeiting has a tendency to move towards “bogus-genuine” counterfeit products. Such products take advantage of the fact that there is a dash of genuine constituents in them and external likelihood with the genuine product in order to step beyond the vigilance of both regulation bodies and consumers. The quality of a

product implies quality control. But as the latter is costly, the only thing done is either sampling or inspection of some characteristics. Thus, deceptive counterfeiting has attacked all convenience goods and food products in particular. In the context of research-goods, the price is the first feature observable by the consumer. In the context of deceptive counterfeiting, the price is attractive but does not necessarily reflect the quality because we are often in front of a bogus-genuine product, that is, a bogus which looks like a genuine.

## **1.2. Experience-based goods**

Experience-based goods can be defined as products for which “only a trial or experiment in one hand, and a use for a while, in another hand, can enable a comprehensive assessment, regardless of sources of information that are available” (Jourdan, 2001)

With an experience-based product, the consumer discovers the quality of the good only after having consumed it. In the context of experience-based products, counterfeiting has a tendency to move towards “genuine-bogus” counterfeit products. Quality is therefore difficult to assess before the purchase and use. However, with repetitive purchase, the consumer will discover the quality of the good. In the context of deceptive counterfeiting, one can then understand why consumers, because of repetitive purchase related to experience-based goods, boycott some sellers or points of sale because of their poor quality products. For that matter, experience-based goods can become research-based goods.

## **1.3. Trust-based goods**

We talk about a trust-based good when the consumer never finds out the real quality of a good, or rather discovers such a quality only in a very long term. The characteristics of the product will never be assessed by the consumer after the purchase and consumption. Numerous goods are sold and bought on the principle of « trust ». As consumers never detect the quality of products, multiple purchases provide them with no information.

In the context of trust-based goods, counterfeiting has the tendency to move towards « bogus-genuine, genuine-bogus and bogus-bogus » counterfeit products. This means that trust-based goods constitute the cradle of deceptive counterfeiting. According to Karpik (2006), “The vigorous and unexpected irruption of trust in economy is associated with a core stake based particularly on the Akerlof model, which demonstrates that uncertainty associated with information asymmetry necessarily leads to market self destruction.”

In Congo, almost all manufactured goods come from abroad (China, Europe and others); the control of the production process - which is the only and essential approach that would enable the provision of information on quality - is practically impossible. Moreover, quality control tests are seldom carried out. We can therefore go as far as to say that the populations are at trust-based goods' mercy. In order to sell a counterfeit product, the seller takes advantage of such uncertainty of the consumer who has but imperfect information on the product's quality.

This paper aims at trying to figure out the reason why, in the context of deceptive counterfeiting, the counterfeiter takes the risk of being at loggerheads not only with the consumer he is deceiving, but also with police forces in charge of enforcing anti-counterfeiting measures. In fact, the counterfeiter may be caught after having sold the whole or part of his production and be liable for a fine.

This article is composed of three core questions:

- 1) What is the market that is favorable to deceptive counterfeiting?
- 2) What characterizes the weakness of such a market in Congo Brazzaville?
- 3) What are the determinants of the offer in deceptive counterfeiting in Congo Brazzaville?

To answer these questions, we have formulated three hypotheses as follow:

H1: The market which is favorable to deceptive counterfeiting is the one with monopolistic competition, bearing in mind that the counterfeiter incurs the risk of being caught.

H2: The failure in the market is characterized by imperfect information on products quality because of both the weaknesses noticed in the anti- counterfeiting struggle and the high level of poverty of populations in Congo Brazzaville.

H3: The determinants of the offer in deceptive counterfeiting in Congo Brazzaville are provided by principal factors D1 and D2 in the basic analysis plan of the principal varimax components.

## **2. THEORETICAL FRAMEWORK**

The market with monopolistic competition is the one which is favorable to counterfeiting on the ground that market entry and exit are free. And so is the case in Congo where numerous and various imported goods from well-known counterfeiting countries are sold a bear, in

neighboring retail trade shops, and sometimes in hypermarkets (Moyo Nzololo and Makany, 2015).

The monopolistic competition market has several sellers, but each of them sells a product which is slightly different from the others. As they are not exactly the same, each seller has therefore the freedom to set his price for his own product. We consider that the goods are heterogeneous as there is products differentiation. In a monopolistic competition market, quality is a very important element in products differentiation. We can consider that there are counterfeit products, that is, poor inferior quality products in one hand, and high-quality products in another. Quality is a vertical differentiation criterion because any consumer prefers a good-quality product, rather than the poor- quality one. What follows is that the seller has some latitude in setting the price of his products, taking into account the demand in front of him. That is notably the case when the price of counterfeit or poor-quality goods is inferior or lower than that of genuine or high-quality products.

In the monopolistic competition market, there are goods that can closely be substituted for other ones. That is the case when counterfeit products rival genuine products as far as quality is concerned. We have talked about bogus-genuine and genuine-bogus products. They are substitutes that are close to the genuine, yet they are not perfect substitutes. Noteworthy is the fact that the counterfeit product tries hard to look like the genuine product as possible as it can, trying to lean on the characteristics of the genuine product - which features the bogus does not have - with a view to deceive the consumer. Doubtless, we are in the context of deceptive counterfeiting. The counterfeiter's objective is to maximize the hope for income utility with optimal production (Kwan Choi, 2005).

If the counterfeiter is not arrested, profit is:

$$\text{Pro} = PX - C(X) \quad (1)$$

Where P is the sale unit price, X is the total output, and C(X) the production cost function.

If the counterfeiter is arrested, the loss is:

$$\text{Per} = -C(X) - A \quad (2)$$

Where A is the fine that must be paid by the counterfeiter.

$$\text{We therefore have: } \text{Per} = -(C(X) + A) \quad (3)$$

We consider that the income derived from sales is confiscated as well as the remaining production. This then means that the total production is confiscated. The fine  $A$  also includes the income derived from sales aforementioned. The relation (3) shows that the loss of the counterfeiter includes both production cost and the fine. In the case of Congo, the fine provided by the law is seldom paid. The fine is often made up of the income derived from the sale.

Let  $n$  be the number of counterfeiters, and  $k$  the number of counterfeiters who are arrested.

The probability to have a counterfeiter arrested is:

$$\alpha = k/n \quad (4)$$

In the case of Congo,  $\alpha$  nears zero because the number of counterfeiters  $n$  is very high.

We recall that if  $U(x, y)$  is laid so as:

$$U(x, y) = \begin{cases} x & \text{with } Prob(U = x) = 1 - \alpha \\ y & \text{with } Prob(U = y) = \alpha \end{cases} \quad (5)$$

Then the mathematical expectation of  $U$  is:

$$E(U) = x Prob(U = x) + y Prob(U = y) \quad (6)$$

We report (5) in (6) then:

$$E(U) = (1 - \alpha)x + \alpha y \quad (7)$$

For a counterfeiter, income utility  $U$  is function of the profit utility  $U(\text{Pro})$  and loss utility

$U(\text{Per})$ .

We have:

$$U = \begin{cases} U(\text{Pro}) & \text{with } Prob(U = U(\text{Pro})) = 1 - \alpha \\ U(\text{Per}) & \text{with } Prob(U = U(\text{Per})) = \alpha \end{cases} \quad (8)$$

Let:

$$x = U(\text{Pro}) = U(\text{PX} - C(X)) \quad (9)$$

That is utility when the counterfeiter is not arrested.

$$y = U(\text{Per}) = U(-C(X) + A) \quad (10)$$

That is utility when the counterfeiter is arrested.

We report (9) and (10) in (7) utility expectation of the counterfeiter is then written:

$$E(U) = (1 - \alpha)U(PX - C(X)) + \alpha U(-C(X) + A) \quad (11)$$

The objective of the counterfeiter is to maximize utility expectation  $E(U)$  with an optimal production  $X$ .

$$\text{The first-order condition is that } dE(U)/dX = 0 \quad (12)$$

Hence:

$$dE(U)/dX = ((1 - \alpha)U'(PX - C(X))(P - C'(X)) + \alpha U'(-C(X) + A))(-C'(X)) = 0 \quad (13)$$

From relations (9) and (10) we lay:

$$U'(\text{Pro}) = U'(PX - C(X)) \quad (14)$$

That is marginal income utility when the counterfeiter is not arrested

$$U'(\text{Per}) = U'(-C(X) + A) \quad (15)$$

That is marginal income utility when the counterfeiter is arrested and his production is confiscated.

We report (14) and (15) in (13):

$$dE(U)/dX = ((1 - \alpha)U'(\text{Pro})(P - C'(X)) + \alpha U'(\text{Per})(-C'(X))) \quad (16)$$

$C'(X)$  is marginal production cost.

As (12)  $dE(U)/dX = 0$  then :

$$(1 - \alpha)U'(\text{Pro})(P - C'(X)) + \alpha U'(\text{Per})(-C'(X)) = 0 \quad (17)$$

$$\text{Hence } (1 - \alpha)(P - C'(X)) = \alpha C'(X) U'(\text{Per})/U'(\text{Pro}) \quad (18)$$

The relation (18) raises two remarks, depending on whether the counterfeiter is arrested or not.

Remark 1: The counterfeiter is arrested.

When the counterfeiter is arrested, there is - for him - more to lose than to win. And his marginal utility loss  $U'(\text{Per})$  is therefore higher than his marginal utility profit  $U'(\text{Pro})$ .

We thus have:

$$U'(\text{Per}) > U'(\text{Pro}) \quad (19)$$

The relation (18) could also be written:

$$U'(\text{Per})/U'(\text{Pro}) > 1 \quad (20)$$

By bringing (18) and (20) closer, we obtain:

$$(1-\alpha)(P - C'(X)) > \alpha C'(X) \quad (21)$$

$$\text{Given that } (1-\alpha)P - C'(X) > 0 \quad (22)$$

The relation (22) shows that the counterfeiter is exposing himself to the risk, and that the expected price is higher than the marginal cost. The counterfeiter anticipates the losses that he might be subject to in case he is arrested. The relation (22) is first-order condition when the counterfeiter is in one hand arrested, and when the optimal production  $X$  is confiscated, in another hand.

Remark 2: The counterfeiter is not arrested

One can consider that the counterfeiter is neutral when meeting the risk in order to persevere in deceptive counterfeiting, and thus his utility loss  $U(\text{Per})$  is the same as what he would gain in terms of  $U(\text{Pro})$ . This implies that marginal utility is constant for the neutral counterfeiter who meets risks.

In that case,  $U'(\text{Per}) = U'(\text{Pro}) = a$  (23) where  $a$  is a non-void constant.

By reporting (23) in (18), the first-order condition that matches an optimal production  $X$  is then written:

$$(1-\alpha)(P - C'(X)) = \alpha C'(X) \quad (24)$$

$$\text{Given that } (1-\alpha)P - C'(X) = 0 \quad (25)$$

$$\text{And thus } C'(X) = (1-\alpha)P \quad (26)$$

The relation (26) means that the expected price equals marginal cost for the risk-neutral counterfeiter.

The market failure is characterized by imperfect information on products quality because of weaknesses noticed in the anti-counterfeiting struggle in Congo Brazzaville.

Deceptive counterfeiting takes advantage of market failure, given that consumers do not have reliable information on the quality of products. Generally, a failure in markets appears when consumers lack pieces of information on either the nature or the quality of a product, and are therefore unable to make the right purchase decision that would maximize their utility (Pindyck and Rubinfeld, 2012). Such a situation jeopardizes the smooth functioning of exchanges, for one can find on the market goods that are considered to be either dangerous or of very poor quality.

Quality uncertainty generates opportunist behaviors that turn around the notion of information asymmetry. For illustration purpose, we consider the example of a transaction between two agents X and Y, by Huynh and Besancenot (2004): “Assuming that agent X has got a piece of information that agent Y does not have. If such information sounds like increasing the surplus of X as long as it is still unknown by agent Y, it would obviously be a good thing for agent X not to reveal it to agent Y.”

Here, information asymmetry means that the quality of the good (rather poor, bad) to be bought is not symmetrically known by the seller X and the buyer Y.

It is therefore easy to understand, as it is highlighted by Akerlof (1970), the reason why the temptation is high for the seller to sell off poor-quality goods when there is information asymmetry.

Imperfect information of the consumer on the products' quality or safety is likely to hinder the smooth running of the market. In fact, if the consumers have no comprehensive information on the characteristics or features of products, they may consume, or even pay a price that does not match or parallel the real quality of the product (Akerlof, 1970). Congo, which is a country that holds a high level of import of manufactured goods, lays the consumers open to uncertainty, in terms of the quality of goods found on the market and, in particular, the weakness of the policy related to the struggle against counterfeiting by the authorities. The goods that are likely to be subject to deceptive counterfeiting are experience-based goods and trust-based goods. “With an experience-based good, the consumer discovers the quality of the good only after having consumed it, and with a trust-based good, he never

discovers the quality of the good, or rather discovers it only in a very long term”(Gozlan and Marette, 2000).

In the context of market failure, the price does not always reflect the quality.

In fact, the Gresham principle shows that when the circulation of information is imperfect, low or poor-quality products take precedence (Akerlof, 1970). This Gresham law finds its illustration in poor-quality cars which are flooding the market of second-hand cars from Europe, which causes the disappearance of good-quality cars from such a market. Those bad cars are therefore sold to the price of good ones whereas they are not, actually. In Congo, the markets of second-hand cars proliferate at open air. Second-hand cars are more numerous than new ones. We talk about second-hand cars from Europe. The majority of those cars are Japanese marks, and this is notably owing to their presence in the sector of automobiles that insure public transportation - buses and taxis - but also among private cars (Moyo Nzololo, 2008).

Second-hand cars are sold with uncertain information stating that what is sold is indeed “second-hand cars from Europe”, which implies that they first have been subject to regular and serious technical checks. Now, such assumption does not guarantee quality or safety, and above all, the seller offers no formal after-sale guarantee. Furthermore, as bad or poor-quality cars are sold at the same price as good-quality cars, it is impossible for the buyer to make a difference between a good-quality car and a bad or poor-quality one because quality is not observable by buyers. There is information asymmetry to the detriment of buyers because the true or real information about the quality is known only by the seller (Shapiro, 1983).

The Gresham law also applies when counterfeit products are no longer sold secretly, but introduced in official distribution networks, and can thus be found on supermarket shelves, retail shops, next to genuine products that will eventually disappear from the shop.

As indicated by Gozlan and Marette (2000): “The phenomena relating to imperfect information on products quality are becoming a great concern in a context of international trade. Markets problems relating to imperfect information may therefore lessen the beneficial effects of trade liberalization for collective welfare.” Indeed, in a context of imperfect information on products quality, we notice a degradation of quality notably because of the presence of poor-quality products on the market of trust-based and experience-based goods.

### **3. MATERIAL AND METHOD**

In this part, we want to identify the determinants of the offer in deceptive counterfeiting in Congo Brazzaville, that is, what pushes counterfeiters into selling counterfeit products. We first describe the sample of our survey, and then from the twenty one variables of the survey we have searched for the two principal factors D1 and D2 provided by the method of the principal components analysis with varimax rotation.

#### **3.1. Material**

We first present the survey, and then we describe individuals and the variables of the sample.

##### **3.1.1. Organizing the survey**

The empiric study is based upon the exploitation of a survey on a sample of 1374 students from a Brazzaville business school, “Ecole Supérieure de Gestion et d’Administration des Entreprises” (ESGAE), in Bachelor and Master cycles (Moyo Nzololo, 2014). Considering a sample of students from a school in order to carry a study on counterfeiting is highly recommended, given that such students have a very limited purchasing power or budget, which makes them privileged targets of counterfeiting (Kremer and al., 2008; Müller and al., 2011). In line with the questionnaire distributed to our sample, we have considered a list of 16 imported products in Congo, respective of the countries of origin, and referring to the data base of the National Institute of Statistics (INS).

The questionnaire of 141 items has been administered under the hard copy form, to be filled out anonymously by the group of students chosen. The counting of a survey was based upon the Sphinx software.

##### **3.1.2. Individuals**

At the end of the survey, 1374 questionnaires showing a good rate of valuable responses by 98.21% were collected. However, missing data were noticed out of 251 (18.26%) questionnaires, which led us to consider, in the analysis, the sample of 1123 individuals only. 55.65% of respondents are females, while 44.34% are males. Females are strongly represented in accordance with not only the number of students registered in this business school, but also with the trend within the country. We underline the fact that the entry into the questionnaire occurs when the individual subject to this survey purchases or not bogus products. From the sample, we can notice the following features: the respondents are from various age brackets, the younger is 16 and the elder is 57. The average age is 24. Full time

students - with no job - represent 78.9%, while 5.2% are civil servants working for the government, and 8.9% working in the private sector. 61% are holders of the General Certificate of Education O-levels, and 14.6% are holders of the bachelor degree. This matches respectively the division of students ESGAE between the first cycle (bachelor) and the second cycle (master).

### 3.1.2. Variables of the study

We have considered twenty one variables associated with counterfeiting, and which are identified in economic literature (Le Roux et al., 2006). They are shown in Table 1 below.

**Table 1: Variables associated with counterfeiting**

Variable	Variable description	Codification
achatcont	Do you purchase counterfeit products?	1 if yes, and 0 if no
contgarant	Are you ready to purchase a bogus product that has a guarantee?	1 if yes, and 0 if no
âge	Age of the respondent	In years
attitude	Don't you mind purchasing a counterfeit product?	1 if yes, and 0 if no
connais	Have you ever heard about counterfeiting?	1 if yes, and 0 if no
crainte	Are you afraid of purchasing a counterfeit product because you suspect it to be of poor quality?	1 if yes, and 0 if no
pointvente	Do you know malls or shops where counterfeit products could be found?	1 if yes, and 0 if no
prixcd	Attractive price for DVD and CD	1 if yes, and 0 if no
prixcos	Attractive price for cosmetics	1 if yes, and 0 if no
prixelec	Attractive price for home appliances	1 if yes, and 0 if no
prixhab	Attractive price for clothes	1 if yes, and 0 if no
prixmed	Attractive price for medicines	1 if yes, and 0 if no
prixtel	Attractive price for telephones	1 if yes, and 0 if no
salar	Professional status of the respondent	1 if he has an income generating activity and 0 if no
rarcdd	Scarcity of genuine CD and DVD on the market	1 if yes, and 0 if no
rarcos	Scarcity of the genuine cosmetics on the market	1 if yes, and 0 if no
rarelec	Scarcity of the genuine household appliances on the market	1 if yes, and 0 if no
rarhab	Scarcity of genuine clothes on the market	1 if yes, and 0 if no
rarmed	Scarcity of genuine medicines on the market	1 if yes, and 0 if no
artel	Scarcity of genuine telephones on the market	1 if yes, and 0 if no
verificat	Before purchasing a product, do you take time to check if it is a genuine or a counterfeit product?	1 if yes, and 0 if no

Source : ourselves, 2014

### 3.2.Method

The processing of the data table  $X= (1123, 21)$  has been executed through the method of the principal components analysis (ACP) with varimax rotation which is a method of exploratory factorial analysis. The internal coherence between items has been measured through an indicator called the Cronbach alpha. It varies between 0 and 1, and it is said to be satisfying when its value is superior to or equals 0.6 (Jolibert and Jourdan, 2006). Noteworthy is the fact that the varimax ACP stabilizes obtained results after a certain number of iterations. Those results thus enable an easy interpretation of principal factors D1 and D2.

## 4. RESULTS AND DISCUSSION

The results of the ACP with varimax rotation are obtained through the XLSTAT software.

### 4.1. Results presentation

The ACP with varimax rotation has converged after 49 iterations to reach a precision of 0.0033 on the criterion of commonality change between two iterations.

**Table 2 : Cronbach Alpha of the two principal factors**

Principal Factors	Cronbach Alpha
D1	0.619
D2	0,570

It results from this table that each of the two main factors has a Cronbach alpha which equals 0.6. Consequently, the two principal factors D1 and D2 can be interpreted in a relevant way, focusing on the table of factorial coordinates after varimax rotation.

**Table 3: Factorial coordinates after varimax rotation**

Variables	D1	D2
age	-0,348	0,488
salar	-0,217	0,348
connais	0,101	0,083
pointvente	0,051	-0,190
contgarant	-0,046	0,218
verifica	0,069	-0,177
crainte	0,110	-0,070
prixhab	0,232	0,638
prixmed	0,248	0,521
prixcd	0,089	0,565
prixcos	0,213	0,640

prixelec	0,319	0,676
prixtel	0,216	0,564
rarhab	0,636	0,109
rarmed	0,590	0,135
rarcld	0,699	-0,061
rarcos	0,703	0,088
rarelec	0,691	0,120
ratel	0,646	0,091
attitude	-0,053	0,017
achatcont	0,100	0,003

The variables that have high coordinates are strongly linked to each of principal the principal factors D1 and D2.

#### 4.2. Discussion on results

The discussion is going to be focused on the two principal factors.

The first factor D1 is strongly linked to rarhab, rarmed, rarcld, rarcos and rarelec variables.

Factor D1 can be called “scarcity of genuine products”.

According to factor D1, the offer of deceptive counterfeiting is explained by the scarcity of genuine products. Manufactured products found in Congo are imported and come from counterfeiting countries (Moyo Nzololo, 2014). In the case of Congo, this scarcity of genuine products finds its explanation essentially in the Gresham law or principle which applies to all convenience goods in one hand, and, in another, in the very small number of arrested counterfeiters because of the weaknesses noticed in the struggle against counterfeiting.

The probability  $\alpha = k/n$  to see a counterfeiter under arrest being near zero, the counterfeiter is neutral vis-à-vis the risk, and therefore perseveres in deceptive counterfeiting. Sanctions are not always applied, and they are not so severe as expected. One of the consequences - in line with notably trust-based goods put at the disposal of the consumer - is that the counterfeiter develops an opportunist behavior (Ganesan, 1994).

The second factor D2 is strongly linked to prixhab, prixmed, prixcd, prixcos, prixelec and prixtel variables.

Factor D2 can be called “attractive price for counterfeit products”:

According to factor 2, the offer of deceptive counterfeiting is explained by the attractive price of the counterfeit product, be it bogus-genuine or genuine-bogus. Poverty probes to be a determinant of the production and consumption of poor-quality products (UNIFAB, 2010). That is the case of Congo which is a country wherein “54.1% of the Congolese population is poor and lives with less than 2 US dollars per day in parity of purchasing power” (the World

Bank, African Development Bank, 2014). As Dussart (1995) points it out: “Definitively, the consumers do not consume less, but they rather consume cheaper. There must therefore be a corresponding market segmentation based on price.” The vertical differentiation of products according to quality goes hand in hand with price continuum which, as far as deceptive counterfeiting is concerned, makes it possible for the counterfeiter to sell off his merchandise, after bargaining or not with the consumer. But what flood the market are poor-quality products not only because of their attractive price, but also because of the low purchasing power (Bloch and al., 1993).

## 5. CONCLUSION

We have shown that the market that favors deceptive counterfeiting is the monopolistic competition market in which the counterfeiter is neutral vis-à-vis the risk. Both the weakness noticed in the anti-counterfeiting struggle and the high levels of poverty of the populations of Congo-Brazzaville encourage counterfeiters to adopt an opportunist behavior that causes market failure. Such market failure is characterized by quality degradation because of the presence of numerous manufactured poor-quality products coming from well-known counterfeiting countries, and which easily penetrate the territory. The principal components analysis with varimax rotation has provided - in the principal plan (D1, D2) - two determinants of the offer of deceptive counterfeiting linked to the product: the variable scarcity of genuine products and the variable attractive price for counterfeit products.

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