

# 7

## Trade and Information Systems: The Case of Wrap Sellers in Brazzaville (Congo)

---

**Mathias Marie A. Ndinga**

### **Introduction**

Information and Communication Technologies (ICTs), which developed in advanced countries in the 1980s, now represent one of the main vectors of globalisation. These technologies (digitalisation, the Internet and mobile telephones) have led to a new era of interdependence among networks, which have transformed the worlds of creation, dissemination and the use of technology.

This represents a transformation of the conditions of production and exchange, brought about by the spread of information and communication technologies which developed progressively in Africa during the 1990s. The forms of ICT that are most used are mobile phones and, to a lesser extent, the Internet. The African continent had just 2 million mobile phone users in 1999, but this went up to 30 million in 2001. This was almost one and a half times the number of fixed line subscribers.

There were expected to be a hundred million (100,000,000) mobile phone subscribers in 2005 (Marot 2001). According to the same author, Africa is only at the beginning of a similar revolution with the Internet. There were estimated to be 4.4 million Internet users in Africa at the beginning of 2001 (mainly in South Africa and the Maghreb countries). They represented 0.5 per cent of total world users, as against 50 per cent in the developed world. The spread of Internet use may only reach 1 per cent in 2005. These figures show two different speeds for the spread, in Africa, of mobile phones and the Internet: fast for mobile phones and slow for the Internet. This is certainly true for the Republic of Congo (Brazzaville).

The mobile telephone network has developed vigorously in the Congo Republic, in response to the liberalisation of the market since 1997. Ninety five per cent of the 108,400 subscribers to the various telephone networks are mobile phone subscribers (Marchés Tropicaux 2001). There are three mobile phone operators in the Congo: Cyrus, Celtel and Libertis. In addition to these three providers, one should also note the National Office of Posts and Telecommunications (ONPT) for fixed line telephones. The Internet is still at its very early stages, with just a hundred Internet cafes (mainly in Brazzaville and Pointe Noire). Until very recently, the service provider was Congo Net, a subsidiary of ONPT, whose links had to pass through South Africa. Congo Net was joined in June 2001 by the Africa-wide company Africa Telecom and by Celtel Telecom.

The purpose of the present paper is to establish whether information and communications technologies (ICTs) have had the same effects in Brazzaville as elsewhere, and particularly whether they have tended to increase or reduce gender inequalities in the wrap (*pagne*) trade. The choice of this subject is appropriate, since the wrap trade attracts as many men as women as agents. As for the women, it has given rise to a group of women called 'The mothers of Lome' from the name of the town from where they obtain their supplies, as Congo no longer produces any wraps.

The problem which underlies this consideration of the effects of ICTs on the wrap trade in Brazzaville derives both from the context of globalisation, characterised by the development of ICTs, and also from the speeding up of changes in the relationships between men and women in African societies. This is why this investigation is based on the following questions: What is the determining factor over access to ICTs by the men and women who engage in this activity? What is the degree of use of ICTs by the wrap sellers in Brazzaville? What is it that distinguishes men from women over access to ICTs in carrying out this activity? What role do ICTs play in the wrap trade in Brazzaville?

Taking these concerns into account, the main object of the present research project is to analyse the role and incidence of ICTs in the wrap trade in Brazzaville. It is essential to undertake an analysis of the conditions of access and then go on to undertake a study of the ways of utilising ICTs in this activity, since these two conditions control the effects of ICTs on the wrap trade.

Our observation of the daily reality for men and women who engage in the wrap trade in Brazzaville leads us to argue that access to ICTs is unequal in at least two ways: vertical (men – women) and horizontal (men – men and women – women). There are also differences to be noted in its use. This discrimination is largely due to the lack of training and to the cost of equipment. I also argue that the ease of access to information that is provided through Information and Communication Technologies contributes to reducing costs and to improving the quality of services provided by both men and women.

The present chapter is based on the gender approach used in the analysis and methodology of collecting information from field studies. Questions concerning access to ICTs and the different ways in which it is used are then considered. Finally, an examination is conducted into the effects of ICTs.

### **The ‘Gender’ Approach, Observation of the Area to be Studied and Investigation Methods**

It is necessary to explain the method of approach adopted in the present study, as well as the methodology of data collection on which the subsequent analysis is based. The gender approach, which is favoured in the present study, is the result of changes in the way in which women’s problems are considered. The ‘gender and development’ approach has taken the place of the ‘women in development’ and ‘women and development’ approaches, which are open to criticism mainly because they imply that the basic problem is constituted by women, whereas it is much more a problem of the allocation of resources between men and women (Bisilliat 2000). It is because the earlier approaches have been questioned that the use of the ‘gender and development’ approach has gradually spread.

The ‘gender and development’ approach can be used to analyse social relationships, while taking into account their differences, their complementarities, their synergies and sometimes their conflicts. Gender enables us to take into account the relationships of unequal power in society between men and women and to accept that this is responsible for an inequitable division of resources, responsibilities and power between men and women.

An analysis differentiated by gender also enables us to take into account other categories of concern and other specific questions, since the categories men and women are not homogeneous: age groups, ethnic origins, dominant/ dominated status, levels of wealth/poverty, religion, socio-professional categories, etc.

An analysis of the socio-economic and gender differences in the population involved in a development programme is a necessary preliminary to a full analysis of the problems that affect the quality of any development project. In the context of the present study, an analysis in terms of gender enables us to integrate our taking into account the dynamics of social change in a globalization situation, characterised by the development of ICTs, and also to follow up their further development, notably over reducing or increasing inequalities between men and women, in the wrap trade in particular.

Such an approach can be linked to the neoclassical market approach. One should note, of course, that the analysis of the market from the economic point of view has undergone significant changes since the seminal article by George Akerlof (1970) about the problems caused by the lack of information on the market. The latter is the subject of our investigation and has moved from a

neoclassical analysis of a situation with complete information (the Walras approximation) to a situation of asymmetrical information marked by opposing choices and/or moral questions. Obtaining information can thus give an operator a dominant position over his competitor. It is in this context that information theories are used in the analysis of the market for wraps in Brazzaville.

I should add that I collected both primary and secondary data at different stages of my research. Taking into account the subject matter of the present study, namely the place and effects of ICTs on the wrap trade in Brazzaville, I used the following methodology, based on two models of investigation.

The documentary research consisted of using various data, starting with an analysis of the available documentation on ICTs in commerce in general and in the commerce of wraps in particular. I thus consulted research documents, articles and other documents related to the subject of the present research. This was done in various organizations, institutions and ministries, in particular the ministry concerned with women's questions.

Field research, carried out in a multidisciplinary and participative context, produced information about changes in the supply and sale of wraps, following globalisation, and notably about the development of ICTs. Preliminary observation of the environment in which the wrap trade is carried out enabled some information to be collected on the numbers involved, the groupings by associations or groupings by areas of the market and the number of points of communications.<sup>1</sup>

With respect to the numbers involved, it should be noted that not all the salespeople could be present in the market at the time when the researchers were making their enquiries. Information about the salespeople who were absent was obtained from those who were present. This concerned their sex and where they carried out their trading activities. Despite all our efforts, it is very likely that some isolated salespeople or some who were absent at the time of the enquiry were not taken into account. This omission should be very small, especially to the extent that a comparison of the figures obtained with those of the various market committees shows that in every case, the researchers managed to find two or three more salespeople.

The first action consisted of a survey of the area of study and enabled us to establish that men were in a minority in the sale of wraps in the various Brazzaville markets. They represented 10.71 per cent of the total number of salespeople counted. Taking the markets individually, there were no men selling cloths in the markets at Bourreau, Commission or Ouenzé. Their share of the market was greater in the markets at Moungali, Mikalou and Bouémba, reaching 20 per cent or more. This first survey suggested that the trade in wraps was almost exclusively in the hands of women at Brazzaville.

The numbers seen selling in the markets can be divided as follows: out of a total of 181 observed, 14 were at the Poto-poto market, 8 at the Talangai market, 12 at Bouémba, 1 each at the Commission and Bourreau markets, 60 at the Mougali market, 25 at the Ouenzé market and 60 at the Total market.

Concerning the question of how the sellers of cloths were distributed in the various markets, it was observed that the sellers of wraps grouped themselves together in a block in all the big markets. We thus saw that at the Total market, there were listed three blocks of wrap sellers, made up respectively of 55, 20 and 12 sellers. In the Ouenzé market, two main groups of 18 and 24 sellers of wraps were listed, to which should be added 4 sellers isolated in a corner of the market. The market at Poto-poto had a block of 13 sellers and a group of 6 sellers. In the other markets, we observed groups of sellers from 2 to 6 and more tables put together.

This preliminary survey of the field covered by this study also enabled us to identify several organizations of wrap sellers. The wrap sellers in the Poto-poto market were formed into a co-operative set up in 1982. It had 19 members – two men and 17 women. It was managed by Madame Marie T. who had been a wrap seller since 1981.

Another co-operative was found in the Total market, with 60 members, which made it the largest. It was managed by Madame Gertrude B. In the other markets, we found organizations that were not, however, as fully structured as those in the two markets mentioned above, but where the wrap sellers still had their presidents. Their role was usually confined to acting as a channel of communication between the market committee and the wrap sellers.

In connection with the object of this study, we noted the communication facilities inside and around the various markets. The work here consisted of listing the Internet cafes and telephone booths in the markets and in the roads and lanes that went round them.

This preliminary work enabled us to put forward two initial conclusions about the degree of ICT penetration. The first was the development at very different rates of the Internet (very slow) and the mobile phone (very fast). The Total market, the largest one in the town, had three Internet cafes; the Mougali and Poto-poto markets had two each, whereas the Talangai market did not have any. These figures for Internet cafes suggest that the Internet is not yet a very significant factor, particularly since the markets and the areas surrounding them should be ideal places for them to be opened, if only because of the volume of transactions conducted in these areas. The number of telephone kiosks is greater (50 in the Total market, 30 in the Poto-poto market and 28 in the Mougali market), but it is even more interesting to note that most of these kiosks use mobile phones. Several owners said this was because they were more profitable than fixed line telephones.

The second initial conclusion was that the communication centres were more important in the larger markets (Total, Poto-poto, Moungali, Ouenzé and Talangai). The more outlying markets (Bouémba and Mikalou) were those with the fewest communication centres. This second conclusion led us to suggest that access to ICTs is determined by the level of activity as well as the level of development. In addition to these points, it should be noted that the existence, even at a low level, of these communication centres enabled market traders who did not possess their own means of communication to have access to these tools. This underlines the importance of considering more deeply all the questions surrounding access to ICTs.

### **The Access of Wrap Sellers to ICTs**

The need to approach this theme through questions connected with access can be justified to the extent that globalisation, with ICTs as its vector, is not a linear phenomenon. The inequalities that go with it have encouraged some authors to argue that in the new world of information and communication, ruled by competition and profit, the disadvantaged groups – whether within each society or at an international level – run the risk of being excluded, unless our countries implement clear and imaginative policies so that they can enjoy the results of the on-going revolution. An analysis of questions concerning access within the context of the trade in wraps can provide us with some light on the situation of the men and women who are developing this activity. Three points form the corner stone of this analysis. The first point concerns an evaluation of the degree to which ICTs have penetrated this activity. The second concerns an analysis of what it is that controls access to ICTs, and the third point concerns the constraints inhibiting access to ICTs among the wrap sellers.

### **The Degree of Access to ICTs Enjoyed by Wrap Sellers**

With reference to all the benefits that ICTs are supposed, at least in theory, to provide to the service sector, it has to be said that the degree of access to ICTs enjoyed by wrap sellers is very poor. Our enquiry shows that fewer than 50 per cent of the wrap sellers have a mobile telephone. Put in another way, just over half of the wrap sellers do not yet have mobile phones. Another point is that this overall view does not enable us to detect disparities among the different groups. Indeed, looking at things from this point of view enables us to suggest something that has already been described as the ‘masculinisation’ of mobile telephones in the wrap trade.

To obtain a clearer view of this phenomenon of ‘masculinisation’ of mobile telephones in the wrap trade, it is worth considering the way in which mobile phones are acquired. Our enquiry shows that 81.8 per cent of the men had bought their own telephones, while the percentage of women who had done so was

only 46.7 per cent. Looking at the provenance of telephones received as gifts, the enquiry showed that 56.7 per cent of wrap sellers had been given telephones by their spouses, 31.03 per cent by their parents, and 10.34 per cent by friends.

A breakdown of the results of the enquiry by groups showed notable disparities between the two groups. The mobile telephones given to men came mainly from parents and friends – up to 50 per cent came from these sources. For women, the telephones received came mainly from spouses (62.96 per cent), followed by parents (29.63 per cent), with friends last of all (7.41 per cent). This set of results gives the first indication of how access to mobile telephones is much easier for men than it is for women.

In considering the Internet, it was decided to use as an indicator the proportion of sellers that had an email address. Concerning the selection of this indicator, it is worth pointing out that unlike the ownership of a computer or of a personal Internet connection, both of them difficult to obtain, an email address can be obtained at a cost of from FCFA 500 to FCFA 750<sup>2</sup>.

Someone who does not know how to use a computer can thus use the Internet with the help that is given by the Internet establishments. In spite of this possibility, however, the situation is still more critical for both men and women. The results of our enquiry show that the proportion of wrap sellers with an email address is very low (1.4 per cent). For the women's group, it is even lower, at less than 1 per cent. For the men, it is 6.3 per cent. Once again, more men have access to the Internet. The degree of access to mobile telephones is also low, as it is to the Internet. To improve this level of access, we have to discover what the most significant factors are, both for the individual and in general.

### **What Determines Access to ICTS among Wrap Sellers**

The foregoing analysis shows that the degree of penetration by ICTS, particularly the mobile telephone, is still not very high, given the importance attributed to innovation in this type of activity. In order to work out the most significant deciding factors, that is those factors on which a campaign could be based in order to increase the degree of penetration, a binary logistic model was created. It relates a binary variable 1, when the wrap seller possesses a mobile telephone, and 0 otherwise, and a range of variables that one can put into three categories. The first type of variable concerns demographic aspects. It concerns the age and sex of the seller.

The second set of variables concerns education. It involves the level of education received by the wrap seller and the highest educational qualification the seller has obtained. The third set of variables relates to the activity itself. It concerns the average of daily receipts and where the suppliers, whether local or foreign, are situated.

The results obtained from this estimation model enable us to put forward various points; first the quality of the regression is fairly good: the model's ability to predict is 76 per cent. Concerning the test of probability, the Khi-two (c2) statistics which is 33.787, is significant up to 5 per cent. This result suggests that the negative hypothesis should be ruled out, otherwise there remains a differential coefficient of zero.

Secondly, all the variables used in the analysis are significant up to 5 per cent. One can say that the fact of being a woman has a significant negative impact on the probability of an event, namely that of a seller to acquire a mobile telephone. The level of education also has a significant effect, more so than the other variables, on the probability of having a mobile telephone.

### **The Constraints Inhibiting Access to ICTs among the Wrap Sellers**

Despite the obvious delays suffered by the country in the dissemination of ICTs, some progress has been achieved, particularly in the way the importance of telecommunications infrastructure has been accepted. The efforts in this direction are still inadequate, and a significant proportion of the population is still deprived of access to ICTs, as in the case under study here. Both short and long term problems will be a hindrance to the dissemination of these technologies among disadvantaged social groups. These problems are so interconnected that it is pointless to try to distinguish those that are related to supply and those related to demand. One of these problems is the cost of acquiring the hardware.

As the survey showed, not a single wrap seller had a personal Internet line at home. This is partly due to the basic product. Computer products have a price quite out of the reach of this class of people. A new office computer costs around FCFA 1 million. In addition, to have a personal Internet connection, you have to pay a further FCFA 49,000 every month, something that is not possible for wrap sellers and especially the retailers, whose profit is around FCFA 250 to FCFA 500 for each wrap sold.

There has been a considerable spread of the use of mobile phones, judging by the number of subscribers to the three provider companies. An analysis of the telephone tariffs shows up some other constraints, in particular the impossibility for the telephone companies to provide customers with sets at affordable prices.

The retail sale prices of mobile telephones of FCFA 39,000 or FCFA 55,000, offered by two operators, are not accessible to all social groups. Such prices are high in relation to the income of poor people. The study carried out by the Research Network on Social Policy in West and Central Africa (*Réseau de Recherche sur les Politiques Sociales en Afrique de l'Ouest et du Centre*, RPSA/OC, 1998) shows that the average size of a household in Brazzaville is 6 people. The study estimates the average monthly income per head in a very poor household to be FCFA 31,284, in a poor household FCFA 70,380: and in a household that is not poor FCFA 185,556.

The conclusion one can draw from these figures is that the lowest price of a machine, even during a promotional sale, represents 124.66 per cent of the average monthly income per head in a very poor household. It represents 55.41 per cent of the average monthly income per head in a poor household, and 21.08 per cent of that in a household that is not poor. For a wrap seller belonging to the social group of very poor people, who saves 1/3 of her income<sup>3</sup>, that is FCFA 10,428, buying a mobile phone at a price of FCFA 39,000 represents around four months of savings. The same calculation, based on the same hypothesis, for wrap sellers belonging to the poor social group, shows that for them it would represent around two months of savings.

These calculations show how difficult obtaining a mobile phone is for the poorer social groups. One can argue without much risk of being wrong that the explosion in the use of mobile phones involves households that are not poor, which, according to the study mentioned above, represent 56.1 per cent of households in Brazzaville. In other words, the high number of subscribers on the books of the various operators concerns those households that are not poor, where the number of sets is multiplied in order to satisfy the needs of each individual in the household.

Mr Omer I., a consultant with one of the two operators, provides an explanation of why the cost of the telephone is high and why it is hard to reduce it. For him, there is a level of the population consisting of middle ranking officials, traders and students, who cannot afford to buy a set costing more than FCFA 35,000, because of their low purchasing power. However, according to the most recent information he has, a set at the bottom end of the range would cost around FCFA 40,000 when it leaves the factory gate. It appears that even with the costs connected with acquiring a set, the actual set itself might cost less than FCFA 35,000. The logical consequence of this situation is the loss of a considerable proportion of clients who would like to have a set.

For the sets imported from abroad, Mr Omer notes that the cost of the set is fixed at the moment it leaves the factory gate. Hence, obtaining a set abroad could not cost less than FCFA 40,000. Nevertheless in Europe, there are rental agreements that put sets at the disposal of the clients at a small price, while obliging them to subscribe to a particular network for a particular period. This kind of agreement is not possible in our situation for three reasons. In the first place, to oblige the client to stick to a certain network means giving him a blocked set whose frequency corresponds with that of the chosen operator. However, in Brazzaville, there are masses of shops that specialise in selling and unblocking mobile phones. This gives the customer the chance of changing operators for any reason of his own. Next, an operator is delighted to receive a new subscriber, since the health of a mobile phone company depends on the use of the system

and not the physical cost of its components. It is the equivalent of the number of subscribers multiplied by each subscriber's average use of his phone. An extra subscriber matters, particularly if the company is listed on the stock exchange. Finally, the rules of the regulatory authority<sup>4</sup> are not very clear on this subject. These rules need amending, so that there could be written agreements among the operators that could protect the interests of each.

This testimony reveals the existence of a further constraint, namely incomplete contracts. Thus, when an operator sells a coded set to a customer, he hopes that he will stick to his network for a certain period. A moral agreement exists between the two. The operator provides the set at a reduced price and hopes to recover the balance from the calls the customer makes from his set.

In a contract between the operator and the customer, there are two kinds of market cost connected with the asymmetry of information. The first is obviously the cost of verification. This comes from the difficulty, if not impossibility, for the operator to be aware of the future conduct of their customers, particularly when they are likely to give an over-optimistic view of their future co-operation with the operator. A hard choice necessarily exists in the mobile telephone market, because the information available is asymmetrical, as the operator, who is making a loan, cannot be sure of the character of the borrower or be aware of the contingencies affecting his future conduct.

The second kind of cost involved is the surveillance or monitoring cost. This comes up when the actions of the customer-borrower, with regard to moral contract, make some follow-up necessary, to ensure that, for whatever reason, he does something that brings into question his promise to stay within the network. The moral angle can find application in the mobile telephone market from the fact that the operators find it impossible or do not have the capacity to exercise any control over the behaviour of their customer-borrowers.

This examination of these questions of access shows that globalization is not a linear process. Not every individual or group of individuals can benefit from its fruits in the same fashion, if only because of lack of equality in the standard of living, organization, etc. This is the case with the wrap sellers, and demonstrates the marginalising of women in access to ICTs, in comparison with that of men. Having discussed the problems connected to access, it is worth going on to deal with the question of how those who do have access to ICTs have used it in the course of their activities. This is the subject of the third part of this study.

### **The Use of ICTs in the Wrap Trade**

The trend in international trade is towards the setting up of telematic networks (Lediberder 1983, Brousseau 1993), which have intensified and accelerated the flow of information in a most impressive way. Being competitive in respect of

deadlines and quality is a major aspect of globalization strategies adopted by the various actors in the face of competition. It is vital to gather and handle information, in order to react swiftly in the processes of production and distribution. Such strategic manoeuvring is made possible, mainly thanks to the emergence of ICTs and to their application to the whole of the production and distribution chain. This is why it is essential to evaluate the degree of ICT use in the wrap trade in Brazzaville. This preliminary task will then lead us to an analysis of the channels for transmitting information about this activity.

### **The Degree of ICT Use in the Wrap Trade in Brazzaville**

It is necessary to point out that relations with suppliers have to be considered at three main levels in the oligopoly situation that characterizes the market. The first concerns the few men who are both wholesalers and retailers. They come from West Africa and import the wraps. It is clear that their suppliers are found overseas. Secondly, the retail sellers of wraps, who are mostly women in the Brazzaville markets, obtain their supplies from the West African wholesale sellers, who are their suppliers of wraps from other countries, apart from Congo Kinshasa. Thirdly, there are the wraps from Kinshasa<sup>5</sup> that are delivered by *kinois*,<sup>6</sup> who are themselves also suppliers of the retail sellers in the Brazzaville markets.

The results of this enquiry, which refers to the sex of the sellers, whether they possess mobile telephones or not and whether they use mobile phones in order to find suppliers, show that contacts with suppliers are made less by telephone, whether the sellers own one or not. Among the women's groups, the proportions are the lowest, never exceeding 30 per cent. With the men, on the other hand, the proportion is of the order of 50 per cent. This shows how men dominate the wrap market. An analysis of the role of ICTs in relations with customers underlines the force of this statement.

An enquiry into two particularly important aspects of relations with customers, namely the announcement to customers of the arrival of wraps and the question of being paid, sheds further light on the lack of equality between men and women in the use of ICTs and on how the men control the activity. The results of the enquiry show how little the wrap sellers make use of mobile phones to contact their customers. The proportion of sellers that use the mobile phone to inform their customers of the arrival of new styles and those who use it in order to get paid by their customers does not exceed 30 per cent. This level is not raised when one considers the women's group.

For the women sellers who do not have mobile phones, the proportions are even lower. They do not exceed 10 per cent in the two cases of relations with customers considered here. Even so, the fact that the percentage is higher than 0 per cent demonstrates that there are some women in the market who do not have telephones but still use telephone kiosks to make contact with their customers.

The proportion of men wrap sellers who use mobile telephones to maintain relations with their customers is higher than that of the women. Even so, the proportion does not exceed 50 per cent. And unlike the women, the difference is not very great between those who do possess a mobile phone and those who do not. These results can more readily be understood from the fact that the men who sell wraps are mostly wholesalers, who feel the need to communicate with the retailers in the different Brazzaville markets, and also the wholesalers<sup>7</sup> organization that calls for permanent contact with the outside world.

### **How Information is Circulated in the Brazzaville Wrap Trade**

To have a better understanding of the use of ICTs in the wrap trade, it is necessary to see how information circulates. The first task to accomplish this is to list all the agents who take part in this activity. One can distinguish three kinds of agent in the internal market: the wholesaler-retailers, the retailers and the consumers. There are no producers in the area, and the wraps sold in Brazzaville all come from outside. Two kinds of agent can be distinguished on the external front: the suppliers in Congo-Kinshasa and the other external suppliers. The need to distinguish the Kinshasa market from other external markets lies in the fact that Kinshasa, because of its proximity, forms an important outlet and at the same time a source of supply. Through informal networks, the Kinshasa traders sell the Sotexki wraps, which are manufactured in Kinshasa, to the Brazzaville retailers. When they leave to go back to Kinshasa, these traders buy from the wholesaler-retailers the wraps manufactured in China, Côte d'Ivoire, etc. This is because the importation of wraps is banned in the Democratic Republic of Congo, in order to protect the national industry. This analysis has been carried out while drawing a distinction between the vertical and the horizontal circulation of information.

Concerning the circulation of information between the suppliers in Kinshasa and the retailers in Brazzaville, it should be noted that the sellers very often move between the two places and get their information on the spot. The telephone is only used in exceptional circumstances, notably when there are orders for patterns (or motifs) that are not available in the market. An extract from an interview with Mrs Jeannette Y., a seller in the Poto-poto market, gives an insight into the use of the telephone in this kind of case:

#### ***On Relations with the Women Traders in Kinshasa***

There are three possibilities. The first is when the women traders come to offer us their wraps, and we buy them on the spot. The second possibility is that we provide them with Chinese wraps (sultana), which they sell in Kinshasa, and in return, they bring us Sotexki wraps of the same value. Of course, this kind of partnership is carried on with people we are used to dealing with over the years. The third possibility is that the Kinshasa traders don't find any takers in the market, they sell their wraps to the wholesalers and we go in our turn to these people to get our supplies.

### ***On When there is a big Order***

When I can't fulfil the whole order, I join in with others. You follow? We're here in a co-operative, and I can say that we form one big family, so that we co-operate well together. When we can't fulfil the complete order, we go to the West African wholesalers. And then, if the order is still not fulfilled, I can telephone a partner based in Kinshasa. I give her all the instructions (the designs, the numbers and the delivery date), so that they can help me provide what my customers say they need. I make the buyer put down a deposit – how much depends on the size of the order. It can happen that my partner in Kinshasa can't follow the instructions I am giving about the quality of the wrap. In that case, I send her a letter with a sample of the cloth.

Concerning the circulation of information between wholesalers and retailers, two cases can be discerned. These two cases basically depend on the distance that separates the wholesalers from the retailers. This is the factor that determines how much use is made of ICTs. In this connection, it is worth noting that the twenty or so listed wholesalers are based in the Poto-poto market.

In this market, for example, when a consignment of wraps with new motifs arrives, the wholesalers employ someone whose task it is to spread the information around among the retailers in this market (the first case scenario). To reach markets further away, a telephone call can be made to someone who agrees to spread the news.<sup>8</sup> There is thus a horizontal circulation of information. The information received by one seller or a group of sellers fans out to the other sellers who have not yet been told. Two interviews carried out with two retailers allow us to follow this process:

### ***On the Use of the Mobile Telephone***

Most of the wholesalers we deal with have representatives. They are the people who come and tell us the new wraps have arrived. We then have to go and look at them on the spot (Mrs Jeannette Y., a seller in the Poto-poto market).

We do use them of course [talking about mobile phones], but you know it doesn't help us very much. The fact that we buy the goods on the spot doesn't help us to gain very much. Even though we may be joined together in a co-operative, we don't have anyone who is really reliable who could go and buy the wraps for us outside, so that we could make a bit more. For example, the profit on one item is between 250 and 500 CFA Francs for Sotexki, Chinoi, wax wraps and the rest (Mrs Julienne N., a seller in the Poto-poto market.)

The circulation of information between the retailers and the customers and between the wholesalers and the retailers does involve some use of the telephone, even if this is at a low level. It is here that a small number of sellers are willing to use the telephone regularly to tell their regular customers, usually workers, about the arrival

of wraps with new motifs. It should be noted that there are rarely more than three of these regular customers. Generally, the sellers wait for their customers to come to them, usually in the market. This in itself restricts the use of ICTs in this form of circulating information.

The circulation of information by mobile telephone between the suppliers in Kinshasa and the retailers, and between the Kinshasa suppliers and those clients who are not themselves sellers of wraps, depends on the circumstances. By analyzing the various interviews with retailers, one can see that the latter had telephone numbers where they could reach their suppliers when they needed to. It goes without saying that information between the Kinshasa sellers and the retailers sometimes passed by mobile phone. As for the passing of information between the suppliers in Kinshasa and their clients (consumers), communication usually passed by word of mouth. The mobile phone only had a secondary role.

It is more in the circulation of information between wholesalers and external partners (the wholesaler-retailers of Kinshasa and other countries) where regular use is made of mobile telephones. The interview with Mr Camara I. shows how this is done at this level:

#### ***On the Circulation of Information between Partners***

The mobile phone helps us a lot. To take an example, if someone needs a lot of wraps, I quote him a wholesale price and I give the order to my supplier. I tell him on the phone how many wraps are required. I don't actually go to him to place the order. I've got a lot of customers, particularly in Kinshasa. They keep themselves up to date over what goods have arrived. If they haven't arrived yet, I tell them when they are expected. You know, thanks to the telephone, I keep in touch regularly with Europe and Asia. Oh yes, I've got contacts there.

I keep in touch with the retailers who operate in the markets by telephone. They ask me what novelties I've got and when goods are due to arrive. Someone asked me this morning for 10 items on the telephone. In the past, he had to get on a bus to come here himself. Yes, the mobile phone is very important.

Concerning the circulation of market information, it is essential to have information about the role of the mobile telephone in the running of the market. To do this, it is first of all necessary to understand that the different agents who are in the market all have different interests. The wholesalers want to maximize their profits by selling all their stocks of goods, whatever their quality. The retailers also want to make a profit, but for them to be certain of making it, they have to have high quality goods that can be readily sold to their customers. Finally, the customers have their own objective of optimizing their benefit by buying a high quality product and above all – a speciality of the Brazzaville consumer – a product that is not too widely in evidence, so that they can be different from other people.

When one takes account of these varying needs, one can see the mobile telephone playing the role almost of an 'auctioneer' (*walras*) in the market.

Just like an auctioneer, the telephone enables information to be passed quickly, so that all the agents in the market are perfectly informed about the different opportunities available to them. In this situation, the wholesaler can quickly pass information on to his likely customers (retailers) in the various markets, and this information is passed on like a wave to all the other sellers almost at once. The presence of seller associations in the various markets adds a bias to the functioning of a market with perfect competition. These associations operate like cartels, in that the sellers place their orders together in bulk, in order to benefit from wholesale prices, and therefore reduce the purchase price of the goods, and once on the market, they decide the minimum price at which they will sell the wraps. The weakness of these cartels arises from the fact that information that has reached the market can also be used by sellers who do not belong to these cartels or associations of wrap sellers. These other sellers, who also want to maximize their profits, can soon set themselves up as an informal group, in order to benefit from being able to buy at wholesale prices.

The advantage of doing this is that these informal groups of around five people on the average can set themselves up within a day, have priority when they go to deal with the wholesalers and can benefit from having a greater choice. Such quick reactions are impossible with associations that comprise more than fifty members. They have to delegate a handful of people to go the wholesalers to collect the motifs and then take them to the other members; then each seller has to make her choice and record her order. Only then can the committee take action and proceed to the actual purchase of the goods. This procedure can take from three to five days, with the risk of some of the motifs no longer being available. This is the first problem of running an association of sellers.

The second problem arises from the fact that the members of the association have a minimum price for the market for each single wrap, based on its quality. The operation of a minimum price is contrary to the principle of a free market, since in a state of perfect competition, the market is supposed to adjust itself in response to the levels of supply and demand. This system of minimum prices also helps the non-members of the associations. These people, somewhat like clandestine passengers, can cut their prices below the level fixed by the associations. This situation is not an unusual one, since the wholesaler-retailers also sell at prices below those of the various associations. This means a reduction in the profit margin, but an increase in overall receipts, together with a speeding up of the rotation of stock, helps to optimize profits. In the long term, this situation could lead to the breaking up of the associations, if they cannot change their operating methods.

The first stage of this analysis shows that even if the mobile telephone can allow complete information to pass between the wholesalers and the retailers, it is rather the opportunist attitudes of the agents that contributes the most to introduce a bias into the operation of a market, which is meant to be in a state of perfect competition, with homogeneous products and uniform buyers, a complete dispersal of both buyers and sellers, complete information for all the actors, with free entry into the market and departure from it. On the contrary, the circulation of information between retailers and customers by mobile telephone does not do anything in itself to allow the market to function in a state of perfect competition.

The first thing to note is that the consumers usually find their information on the spot, by doing a tour of all the retailers and the wholesaler-retailers. In this way, the circulation of information by mobile phone only concerns the regular customers who have probably established special links with the sellers. However, when the customers hear of the arrival of new motifs, there is no tendency to spread this knowledge, if only to stop the wrap they buy finding itself all over the town. There is therefore a holding back of information, and so it is not possible in such conditions to have a market with perfect information. Here again, the mobile telephone in itself cannot play the role of an auctioneer, which is indispensable for the working of a market with perfect competition.

This analysis of the circulation of information leads us to a good understanding of how low the level of use of the mobile telephone and Internet is. It also makes us aware of the marginalization of women, who do not have control over their activity, even though they form the majority participating in it. Lastly, this analysis of the circulation of information shows that it is in the relations between the suppliers and the sellers and in the relations between the suppliers and the external partners that ICTs are most used. This concerns first the relations between the external markets (including Kinshasa) and the wholesalers and, secondly, the relations between the retailers and the wholesalers as well as the suppliers from Kinshasa. Relations between the customers (the consumers) and the other operators, particularly the wholesalers and the suppliers from Kinshasa, are characterized by the use of traditional methods of communication, e.g. by word of mouth.

### **The Effects of ICTs on the Wrap Trade in Brazzaville**

After dealing with the question of the access to and the use made of ICTs in the wrap trade, one might be tempted to think that the latter part of this study is hardly worth undertaking. Indeed, the low level of use of these innovations in the business of selling wraps might leave us with the general impression that its impact is of little significance. Nevertheless, such a conclusion would be premature. Firstly,

it would not take into account any possible perception by the wrap sellers that they could thus enhance their profits, by however small an amount. Nor would such a conclusion make any distinction between the effects on relations with customers, on the one hand, and with the supplier, on the other hand. The fact of being greatly or little used does not always justify the importance of the impact on the activity of tools of communication.

### **The Wraps Sellers' Perception of the Profit They Make from Using ICTs**

Despite the low level of access to ICTs and therefore also of its use, the objective here is to find out if the benefits that flow from its use – however small they might be – are noticeable to the wrap sellers. To this end, the wrap sellers were asked to give their points of view on how ICTs had affected the amount of money they received. The results we obtained suggested that fewer than 35 per cent of the wrap sellers admitted that ICTs had helped to increase their sales. This percentage was made up of those who had mobile phones. For those who did not have one, the percentage was under 5 per cent. It was observed that the difference between men and women with mobile phones was not very much, but the sum of the two percentages was still less than 40 per cent. On the other hand, when one looked at the groups of sellers without mobile phones, the proportion went down. This was particularly so with the men (2.74 per cent). These results were minimal with regard to the developments in the second part of this study. Once again, some extracts from conversations with the wrap sellers can explain these results more clearly.

#### ***On Whether Mobile Phones have made a Significant Difference to their Activities***

They enable me to talk sometimes to the traders in Kinshasa, when I've got a big order, but even so, I can't say that they have had much impact on my activities (Mrs Jeannette Y., retailer in the Poto-poto market).

The telephone does help us to make money in our trade. For example, with my partners in Kinshasa, I can find out on the telephone if the goods are ready, if the wraps are available from the factory. In the past, you had to pay for a ticket to go to Kinshasa, but now I can find out at a cost of 300 CFA Francs. You used even have to pay 25,000CFA Francs for a visa to go to Kinshasa... Now with one minute's conversation, you can find out what you want. The mobile phone has also enabled us to extend our activities. Besides making use of them, I can sell lots of other things next to my wraps, such as telephones and their accessories (Mr Camara I., wholesaler).

The reserved attitude of the retailer reflects that of most retailers we met in the markets. As the retailers are the most numerous, it follows that the percentage of sellers who think that the mobile telephone has had a significant effect on their activity is inevitably low. However, the difference between the retailer and the wholesaler reflects also the difference between the levels of use. The second part of this study has shown that the wholesalers use the mobile telephone in their activities more than the retailers do.

As for the Internet, an analysis on these lines is difficult to carry out, since practically none of the wrap sellers used it to carry on their trade. Many of them did not know how to use it, and some had hardly heard of this novelty, as can be seen from the interviews with Mrs Jeannette Y. and Mr Camara I.

***Q: Have you ever heard of the Internet?***

I heard about it for the very first time when Koffi Olomidé (a popular singer from the DRC) brought out an album where it was mentioned. I don't exactly know what it is, however (Mrs Jeannette Y., retailer in the Poto-poto market).

The Internet is important. I haven't yet learnt to use it, but I've heard people talk about it. As trade is slack at present, I'm going to learn how to use it. The Internet, like the telephone is very useful in trade. But the telephone comes first before the Internet (Mr Camara I., wholesaler).

**Econometric Analysis of the Effects of Using ICTs on the Wrap Trade**

In order to carry out an empirical investigation of the effects of ICTs on the wrap trade, an econometric model was created. The aim was to verify whether the use of ICTs in this activity had had a positive effect on daily sales. An increase in the speed at which information can be handled, which has been made possible by ICTs, ought to be reflected in increased sales. Up till now, these daily sales have been regarded as depending on the number of hours worked each day, and of the experience of the sellers, taking into account how many years they have been engaged in the activity and how much they use ICTs in order to help carry out their trade. The daily sales (endogenous variable) are related to the exogenous variables by a linear-logarithmic function.

The exogenous variables comprised the number of hours which the seller spent each day in this activity, the variable ICT, which had the value 1 when the seller used at least one ICT to contact the customers, and 0 when this was not the case. The variable represented the contact with the suppliers. Like the previous variable, it took the value 1 when the seller used at least one ICT to make contact with the suppliers and 0 when this was not the case.

Working out the equation was done using the data from the research done with the sellers. The statistical problem connected with using this kind of model to make estimates is that of heteroscedasticity (in other words, the lack of constancy of the variation in terms of error). This was resolved by the systematic use of White's Correction in the estimates.

It should be noted that two indicators provide information on the overall quality of the regression: the 'R<sup>2</sup>' statistic and the Fisher statistic. The statistic 'R<sup>2</sup>', which indicates the degree of the model's adequacy in data, is at a level which could be considered rather low. This result is not surprising, since the daily receipts also depend on structural variables such as the reduction in the purchasing power of households following devaluation, the reductions in salaries and the impoverishment of households following the wars in 1997 and 1998, which were not taken into account in the specifications for the model. Concerning the Fisher statistic, the probability is very small that the variable coefficients are nil. This leads us to conclude that the model is generally satisfactory at a threshold of 5 per cent.

An analysis of the coefficients suggests that experience and the number of hours worked are significant at a threshold of 5 per cent. By working one hour longer each day, the seller increases her daily receipts by 0.88 per cent. By increasing the number of years worked in this activity by one year (increased experience) the daily receipts would increase by 0.12 per cent.

Concerning the two variables used for noting the effect of ICTs on the wrap trade, the contrasting nature of the two should be noted. The variable 'Contact with the suppliers' had a positive coefficient. This suggests that the use of ICTs by the sellers in their relations with their suppliers had a positive effect on their daily receipts. This result is not surprising in view of the fact that ICTs can enable the sellers to find the motifs that are sought after by the customers very quickly. They can thus obtain supplies and meet the requirements of customers as quickly as possible.

The variable 'Contact with the customers' had a negative coefficient. This suggests that the relations set up by the wrap sellers with their customers through ICT did not match up to the level of their daily receipts, and hence this negative result. It should also be noted that the coefficient is not significant below a threshold of 5 per cent, which leads us to remark that the use of ICTs in relations with the customers had only a marginal effect on daily sales.

The results obtained on the effects of ICTs on the wrap trade reflect the extent of use in relations between the sellers and suppliers, on the one hand, and between the sellers and consumers on the other. ICTs are used to some extent in the first case, while in the second, communication by word of mouth still prevails, which explains the results obtained.

## Conclusions and Implications for Policy

At the conclusion of this study, the following conclusions can be drawn at three levels:

- At the level of access, it emerges that the level of access remains low for the whole of the wrap seller group, and is still low when considering the two groups, men and women, together. Despite the low levels of penetration, there was a clear difference between men and women. The proportion of men possessing a mobile telephone was much higher than that of women. The same applies to the Internet.
- At the level of the use of ICT, the first conclusion one can draw from all the analyses is that ICTs are more used between the retailers and the wholesalers and above all between the wholesalers and the external suppliers. Information is very rarely circulated by ICT between the customers and the other operators in the market. Here too, the use of ICTs to pass information among the various operators in the market shows how important are the differences between men (and women), on the one hand, with a mobile telephone and on the other hand, between men and women in each of the situations mentioned above.
- At the level of the effects of ICT on the wrap trade, the first lesson to be learnt from this study is that the proportion of wrap sellers who enjoy benefits from the use of ICT is low both for each group and for the whole. In every case, the results are higher among the men than among the women. The second lesson emerges from the econometric analysis. This shows that it was the use of ICT in relations between the suppliers that had a significant effect on daily receipts. The level of use of ICT in relations with customers was not high enough to throw any light on the daily receipts in this area.

The conclusions drawn at these three levels satisfactorily confirmed the working hypothesis on the differences of access among men or (women), on the one hand, and between men and women, on the other. The same applies for the hypothesis about the limited effects of ICT, which is confirmed as regards the conclusions linked to the effects of ICT on the wrap trade.

It is worth recalling here that the main problem, even more than the use and the effects of ICT, is that of access to ICT by the wrap sellers in general and by the women sellers in particular. They form the great majority of those engaged in this activity, but have no control over it. Access to ICT in the context of globalization is absolutely vital for women. It is a matter of survival in this activity that is so open to the outside world. Otherwise, this activity, however remunerative, becomes for them a simple activity of production and reproduction of hard labour. To be ready and determined to meet this challenge is the only way that is open to the women wrap sellers to get out of a situation of marginalization and exclusion, so that they can have a chance of playing a leading role in the activity. It

is not technology in itself that excludes; but on the contrary, it is the methods put in place and the attitudes and state of mind that one sees, which lead to exclusion or marginalization (Babassana 2000).

It follows from what we have just said that the following policies should be formulated on the ways and means of spreading these technologies and the mastering of them by the people in general and by the wrap sellers in particular. There is a leading role for the state, which should define an appropriate strategy and appropriate policies. More precisely, the state and the historic operator should play a major role in the general orientation, the creation of infrastructure and major items of equipment.

The second condition is the setting up of methods or arrangements to enable the general public to have access. These arrangements could include tele-centres and Internet cafes, and the introduction of ICT, particularly the Internet, into the educational system. The different actors should define a policy for multidimensional training, particularly for apprenticeships for computer studies in primary and secondary schools education, and in the framework for further education at all levels.

For the wrap sellers, this involves, on the one hand, making them aware that in order to have control over their activities, they will need more and more to have a command over these new tools for communication. On the other hand, it will be important to reconcile the training programme with the possibilities for the women wrap sellers to be available for it. For the mobile telephone, NGOs, for example, could play a role as agent in setting up an agency relationship between the operator, the wrap sellers and the NGO, so as to facilitate access to this category of possible consumers. As for the Internet, the question remains open: what price could the wrap sellers afford to pay that could make it worthwhile for a trainer to train them, when the willingness to pay remains so very low?

## Notes

1. The number of communication points here refers to the number of Internet cafes and telephone kiosks.
2. The price of FCFA 500 is only available to those who can already use the Internet. For this, they have a 30 minute session on the net and can open an electronic mail box. The price of FCFA 750 is for those who cannot use a computer. In effect, they pay a supplement of FCFA 250 for the help they are given in their session on the Internet.
3. This hypothesis implies that the individual must reduce his consumption of food and above all not fall ill, which is not easy for him to do, particularly since good health depends in part on a proper diet.
4. General Direction of the Central Administration of Post and Telecommunication (DGACPT).
5. Through cross-border trade, the women sell the Sotexki wraps, and before returning home, they buy Chinese and other wraps for resale in Kinshasa.
6. The name given to the inhabitants of Kinshasa.

7. The investigations carried out on this point show that the wholesalers do indeed have contacts with external suppliers, who inform them regularly of the prices of wraps. The wholesalers get together and work out what they all need, and then appoint a representative to go and make the purchase. The cost of transporting the goods and clearing them through Customs is met from contributions from all concerned, the size of each contribution depending on the size of each order. The cost of buying the ticket is shared equally among all the wholesalers.
8. It is worth commenting that, there too, the information provided conveys no details. All that is announced is that wraps have arrived, without saying anything about their quality. The sellers have to go themselves to where the wraps are, to find out about their quality.

### Bibliography

- Adera, E., 2001, 'Experiences in Gender and ICTs for Development: An IDRC Perspective', presented to the National Seminar on Information Related to Women, National Women's Education Center, Japan, 16 March.
- Akerlof, G., 1970, 'The Market for Lemons: Quality Uncertainty and the Market Mechanism', *The Quarterly Journal of Economics*, 84, pp. 488 – 500.
- Babassana, H., 2000, 'Accélération des nouvelles technologies de l'information et de la communication et émergence et expansion d'une nouvelle économie', paper presented to the Forum of the Congolese week of new technology for information and communication, Brazzaville, 13-17 June 2000, CREP.
- Bisilliat, J., 2000, 'Luttes féministes et développement: une perspective historique', *Cahier genre et développement*, le genre un outil nécessaire, l'Harmattan, Paris: AFED, Geneva : EFI, pp. 19 – 29.
- Brousseau, E., 1993, 'L'économie des contrats, technologies de l'information et coordination interentreprises', *Economie en liberté*, PUF, pp. 137 – 177.
- Cahuc, P., 1993, *La nouvelle microéconomie*, Paris: La découverte.
- FNUAP, 2000, 'Vivre ensemble, dans des mondes séparés: hommes et femmes à une époque de changements', United States: Prographics, Inc.
- Heckman, J., 1979, 'Sample Selection Bias as a Specification Error', *Conometrica*, Vol. 52, No.3, pp. 542 - 562.
- Initiatives Genre et Développement, 2002, 'L'approche genre', <http://www.iged-madagascar.org/approche>
- Jeune Afrique Intelligent, 2000, 'La guerre du téléphone, Congo (Brazzaville)', No. 2076-2077.
- Khayat, M., 1994, 'L'échange de données informatisées dans les activités d'exportation des pays du sud: les passages portuaire', Paris: Revue Tiers Monde, PUF, pp. 375 – 390.
- Lediberder, A., 1983, *La production des réseaux de télécommunication*, Paris: Economica.
- Locoh, T., 1996, 'Changement des rôles masculins et féminins dans la crise: la révolution silencieuse', in Coussy Jean and Vallin Jacques (eds.), *Crise et population en Afrique*, Paris: CEPED, pp. 445 -469.
- Marchés tropicaux et méditerranéens, 2904, 6 July 2001.
- Marot, C., 2001, 'L'actualité des secteurs', *Marché tropicaux*, Novembre.
- Mike, J., 2001, 'Afriboîtes, Télécentre et Cybercafés : Les TIC en Afrique', *Coopération Sud*, No.1, pp. 112 –127.

- PNUD, 2001, 'Mettre les nouvelles technologies au service du développement humain' Global Report on Human Development, De Boeck University.
- Raimberg, P., 1995, 'Asymétrie d'information, théorie de l'agence et gestion de l'entreprise', *Encyclopédie de gestion*, Paris : Economica, pp. 181 – 191.
- RSPA/AOC, 1998, 'Alternative stratégique de la lutte contre la pauvreté au Congo', final investigative report, URSPA, RRPS/AOC, CRDI, CRVZ, Brazzaville.
- Ricardo-Gomez, J.M. and K. Reilly, 2001, 'Au-delà de la connectivité: l'expérience de l'Amérique Latine et des Caraïbes', *Coopération Sud*, N°1, pp. 128 –142.
- Varian Hal. R., 1997, 'Introduction à la microéconomie', Paris, De Boeck University: Nouveau Horizons.

