AN EMPIRICAL STUDY OF PHYSICIAN'S DRUG PRESCRIBING BEHAVIOUR. THE CASE OF FRENCH GPs.

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Introduction

Over the last twenty years, in France, the level of the consumption of pharmacy strongly increased, which increased the public health expenditure. The physicians were blamed in those drifts.
Theoretically, drug prescription is a result of the accurate diagnosis. Actually, drug prescription are often ruled by non-scientific factors linked to the physician's behaviour. To complete the picture of medication usage we needed to better understand physicians' practices related to drug prescribing. We designed a qualitative exploratory study to provide more detailed data on the factors affecting prescribing decisions.

Introductory part. The ambulatory care in France.

The French health system reconciles the principles of liberalism and solidarity. Its financing is ensured by the public assurance (Social Security), the mutual insurance companies, the State, the households and the private insurance. The Social Security supports the greatest part of financing. This organisation was created in 1945 like a "private " organisation, but actually it is quasi-public and it is controlling by the Health Ministry. In France to join to the system of the Social Security is obligatory and about 99% of the population is covered by the public insurance. The consumer of health care freely choose the practitioners they consult and they can visit several physicians for the same illness. The patient carries out the payment directly to his practitioner. The cost spent is refunded by the public insurance on a basis of predetermined percentage. Moreover, a rest of the cost is also refunded to the patient, if he has subscribed a complementary insurance.
The care offer is characterised by the coexistence of a public sector and a private sector (ambulatory care). Over the last two decades, it was a considerable growth of the ambulatory care. This growth is related to a transfer of hospital activities towards the cabinets of the liberal physicians. It is a case of the small hospital public establishments, whose activities, for reasons of economies, were reduced. Moreover, the development of new schemes, such as the installation of care sections in the old people's homes avoiding the immediate recourse to the hospitalisation, also played a considerable part in the evolution of the ambulatory medicine. It contributed to the development of the French liberal sector, whose social and economic status was born in end of the First World War. Moreover, the liberal medical exercise is regulated by the code of the public health. There is a " Order " which takes care of ethic and of professional respect and allows or limits to exert. To be in the liberal sector, it means for the practitioners to have a freedom in the organisation of activity and in the choice of the installation. Also, they can associate a activity in the public sector to their liberal activity. However, there is an obligation of continuous formation for the liberal physicians and every five years they must justify that by a certificate. The formations are validated by the national Council of the continuous formation, which joins together the Order, the University, associations of formation, as well as representatives of the regional Unions liberal physicians. In addition, in 1993 there were instituted a regional unions of the liberal practitioners, who contribute to the improvement of the health system management and the care quality.

1. The consumption of pharmacy in France over the last two decades.

Over the last twenty years, health care expenses have increased in France. From 1980 to 2001, the share of health care spending in total GDP increased and passed from 7.4 % in 1980 (in comparison: 3.5% in 1960) to 9.5% in 2001. One of the rise is the increase a drugs expenditure. Graph 1

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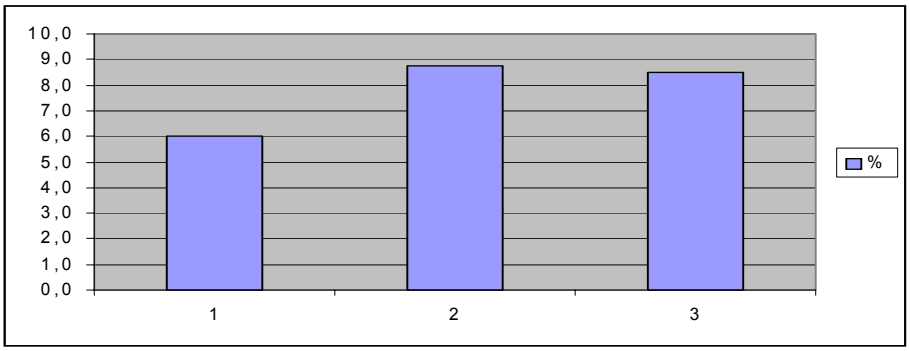
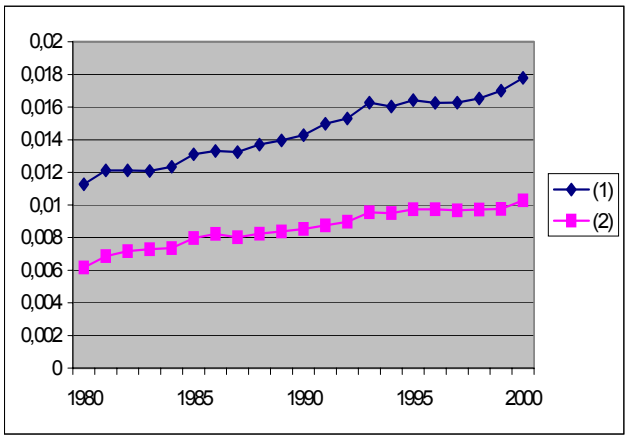
illustrates the annual average rate of growth (AARG) for a GDP, a share of the pharmaceutical expenditure in total medical consumption and a share of the drugs prescribed by the general practitioners in total medical consumption. Over the period between 1980 and 2000, a AARG was 6 for a GDP, 8.5 for a drugs (the total consumption of drug apart from the hospitalisation ; that are a goods, who can be acquired after the prescription or without) and 8.8 for the drugs prescribed by liberal general practitioners. That shows well, that the value of pharmaceutical expenditure has developed with a annual average rate of growth of 2.5 points superior to that of the GDP. Between 1990 and 2001, in France, the share of the pharmaceutical products expenditure in the total of the health expenditure have passed from 16.9% to 21% (figures presented by OECD: Organisation for Economic Co-operation and Development). The half of the progression of pharmaceutical expenditure in PIB is taken by the part of liberal general practitioners' drugs prescribed in the GDP (graph 2). Graph 3 shows that between 1980 and 2000 the level of the pharmaceutical prescription of the general practitioners in the totality of the medical liberal population prescription was relatively stable, whereas the share of pharmaceutical prescription in the totality of liberal general practitioners' prescription (kinesitherapy , laboratory, sick leaves' days) increased of 10%. Graph 4 illustrates the fact, that in France the value of prescription drugs per liberal GPs increased more quickly than the value of drugs prescription by medical act.

Graph 1. AARG of a GDP (1), of a share of the pharmaceutical expenditure in total medical consumption (2) and of a share of the drugs prescribed by the general practitioners in total medical consumption (3).



Graph 2. Progression: total expenditure on pharmaceutical goods as a percentage of GDP (1) and pharmaceutical prescription of liberal GPs as a percentage of GDP (2).



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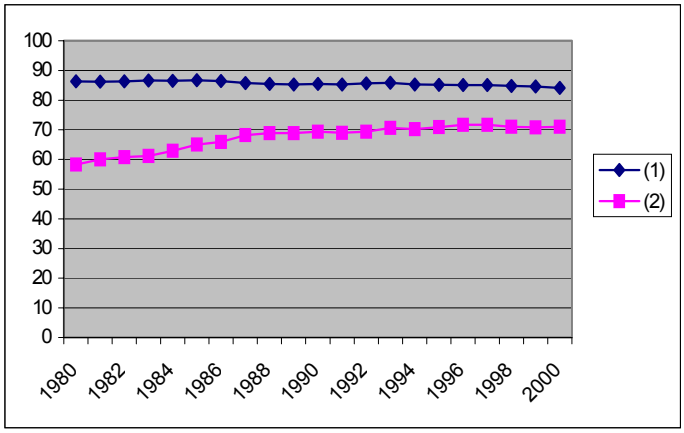
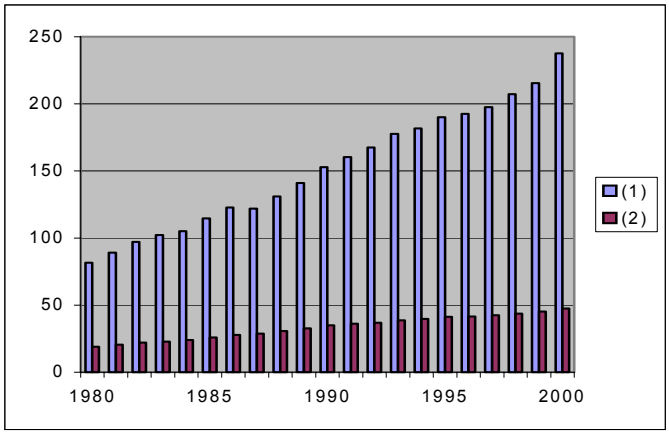
Graph 3 Evolution: 1. pharmaceutical prescription of liberal GPs as a percentage of pharmaceutical prescription of liberal physicians; 2. Pharmaceutical prescription of liberal GPs as a percentage of totality of liberal GPs prescription.



Graph 4. The value of drugs prescription per liberal GPs (1) and of drugs prescription by medical act (2).



The rising of the health care expenditure affected negatively the account of public insurance and created a public deficits. These deficits affect the budgets of the State and are a cost important for the expenditure of the community. Confronted with increasingly significant loads, the successive governments did not remain indifferent. Since the end of the Seventies, one can count a score of check plans for public insurance expenditure. In order to suppress the haemorrhage, these plans were directed in two directions: to check price and to check quantity.

First of all, they proceeded by readjustments of refunding rate and by a pressure on the prices of pharmaceutical goods. These interventions led to a drift of volumes. If it is simple to check the selling price, it is much more difficult to check the volume of conditioning and the concentration of the products. A package of 12 compressed can become a package of ten compressed in another version. This policy supports the big laboratories and penalise the small laboratories, who do not have a real market power : a majority of the small laboratories is very specialised and exploit only very few products. Moreover, they do not have the commercial structure of a big laboratories and they have evil to compensate for the prices by volume to maintain their margin and to finance new patents.

Thereafter, the policies of offer regulation were proved to be not very effective. One can consider the example of the hospitals: since 1984 the system of price at the day was replaced by the total budget.

This system does not encourage a moderation of expenses, since the acquired budget are renewed by budget of the previous year.
Finally, a new instruments, combining price and volumes, were appeared. One of them is guidelines. The guidelines were introduced into the medical agreement of 1997. For the first time, it appeared a agreement which distinguishes the specialists from the general practitioners. Also, it was creating the mechanism of the negative relation between their income and the level of their prescription. In beginning of this policy, it was a good results. However, the posted objective for 1999 to 2000 was 2%, but the level of prescription overflowed of 11,1 %.
This increase of the refundable pharmacy consumption level increased the public expenditure. The physicians were blamed because of their intermediate role between the producer and the consumer of drugs.
It should be added, that France, like the majority of the OECD countries, tried to check the growth of the pharmaceutical expenditure by using the next measurement (which is one of most current in the policies of Europeans countries) : to increase the participation of the consumers in the costs of the pharmaceutical goods. The number of not refunded pharmaceutical goods were increased, mainly for the drugs known as " of comfort " or whose therapeutic value is not proven. But the participation of the consumers was also increased in the costs of many other drugs. However, that is not contributed very much to the resolution of the problem of public pharmaceutical expenditure. The present Minister of Health, Mr. Douste-Blazy announced that the deficit of the health insurance should reach 12,9 billion Euro in 2004.
Thus, it proves that for defining the incentive policies, it is essential to understand the mechanisms which intervenes in the behaviour of the prescriber.

3. French liberal GPs market over the last two decades.

In 2001, 60 949 general medical practitioners exert in liberal sector. With more than one GP for 1000 inhabitants, the French enjoy of an easy access to health care and physicians' councils: each year the three-quarters of population have recourse to practitioners. The general medical practitioners occupy an essential place in the system of health care not only by their own activity, but also by the part which they play in the regulation and the management of the health care process. In 2001, on average each doctor sees 1500 different sick person. On average, they carry out 5000 acts per year. 75 % of the acts are consultations. The proportion of the visits, as a percentage of the total medical activity, is 21 %. Since 1990 the annual average number of visits dropped by 15%. An investigation carried out by INSEE showed that on average between 1992 and 2000 the weekly working time of the doctors increased of 2 hours 48 minutes. The average of consultations per physician was 2468 in 1980 and became 3692 in 2000. Over the twenty years, the number of consultations per patient quasi-doubled. In 1980, on average, one entered 2 consultations per sick person, in 2000, the number of consultation passed to 3,8 per sick person. However, the workforce of liberal general practitioners, which increases in a number, slows down in the rate. Indeed, since 1980, the AARG of the manpower knew two different periods (table 1). Between 1980 and 1990, the AARG was 2,8 %, whereas it was only 0,4 % between 1990 to 2001 (0.8 % between 1990-1995 and 0.1 % between 1995-2001). Over the period 1995-2001 the density of the GPs (1 practitioner for 100 000 inhabitants) had a negative AAGR. Between 1980 and 2001 the proportion of the liberal general practitioners in the liberal medical population passed from 58,2 % (in 1980) to 53,4 % (in 2001).

Table 1: Density and manpower of the liberal general practitioners.

	density /100 000 inhabitants	**staff**
1970	53,91	27 371
1980	81,89	44 123
1990	102,56	58 159
2001	102,97	60 949
1980-1990 AARG (%)	2,3	2,8
1990-1995 AARG (%)	0,4	0,8
1995-2001 AARG (%)	-0,3	0,1

Source : Eco-Santé France 2002

Twenty years ago, the female medical population was represented very slightly in the liberal medical population. Today a manpower of GPs' women doubled and passed from 12,8%, in 1983 to 24.3% in 2001.

That statistical analysis emphasises the important role plays by the liberal GPs in the guarantee of the access to the health care.

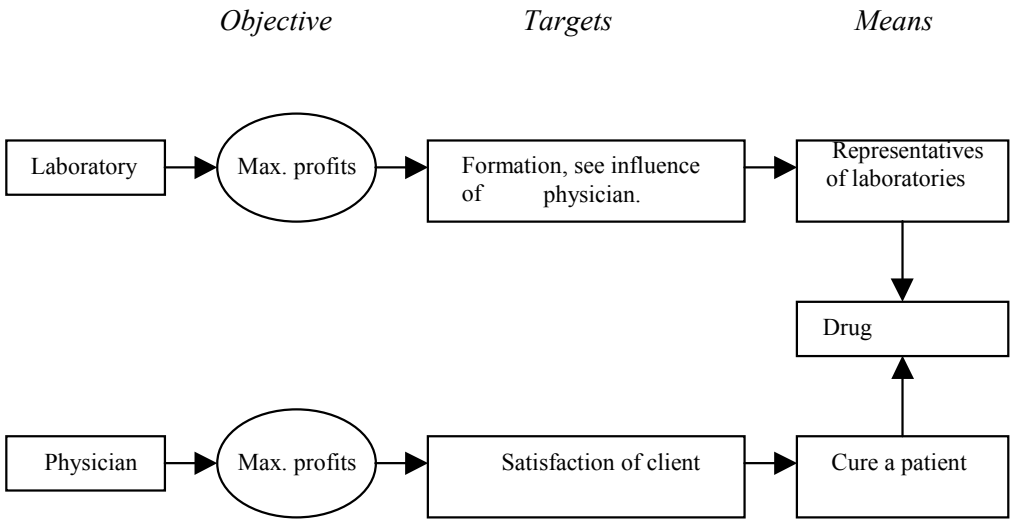
4. Analysis of constraints.

4.1. RELATIONSHIP: PRESCRIBER-PRODUCER OF THE DRUG.

The French drugs' market is a specific market. His specificity comes owing the fact that the factors of its activity do not result of the same definition, that the factors of any other economic good markets. We have the framework of the confidence goods' market without direct access to consumption and without total financial commitments of the purchaser. Side of the demand, we can note the existence of a direct request (carried out by the consumer at the time of purchase) and of an indirect request (medical prescription). Side of the supply: the direct supply (the proposal of the drug by the pharmacist) and indirect supply (the offer of the pharmaceutical goods' producer). By the intermediate role, the doctor is a key element between the offer and the consumer of pharmaceutical products. The relationship between pharmaceutical industry and the physician, as a prescriber, interferes in the microeconomic analysis of the drug prescription. This is why, it is important to understand the operation of the pharmaceutical market. The pharmaceutical laboratories, producer of the drugs, pursue two complementary goals. The first consists to discover or improve the molecules. The second consists to maximise their profit and to satisfy their shareholders.

The statistical analysis of pharmaceutical market shows, that the share of the non-refundable drugs in the volume of all sales represents only one very small proportion in the whole of the turnovers of the laboratories (for example, in 2000-2001, they counted only for 3.6% of the turnovers of the pharmaceutical market). Indeed, the sales of pharmaceutical industry, towards the hospitals are definitely lower than the level of the sales towards the wholesalers. The wholesalers are the principal suppliers of the pharmacies. Moreover, the quasi-totality of the refundable drugs bought in pharmacy are prescribed. For these reasons, the liberal physician, as a prescriber, constitutes a principal target in the marketing strategy of the laboratories (Diagram 1). It arises from work of ANDERSON (1993) that the general practitioners and the "big" prescribers often tend to privilege the commercial sources of information offering by pharmaceutical laboratories. The vulnerability of the physician and his capacity to be influencing have considerable effects on the nature of his prescription. These aspects is taken into account in our microeconomic analysis of the physicians' drug prescribing behaviour.

Diagram 1. Objectives, targets and means of drug producer and drug prescriber.



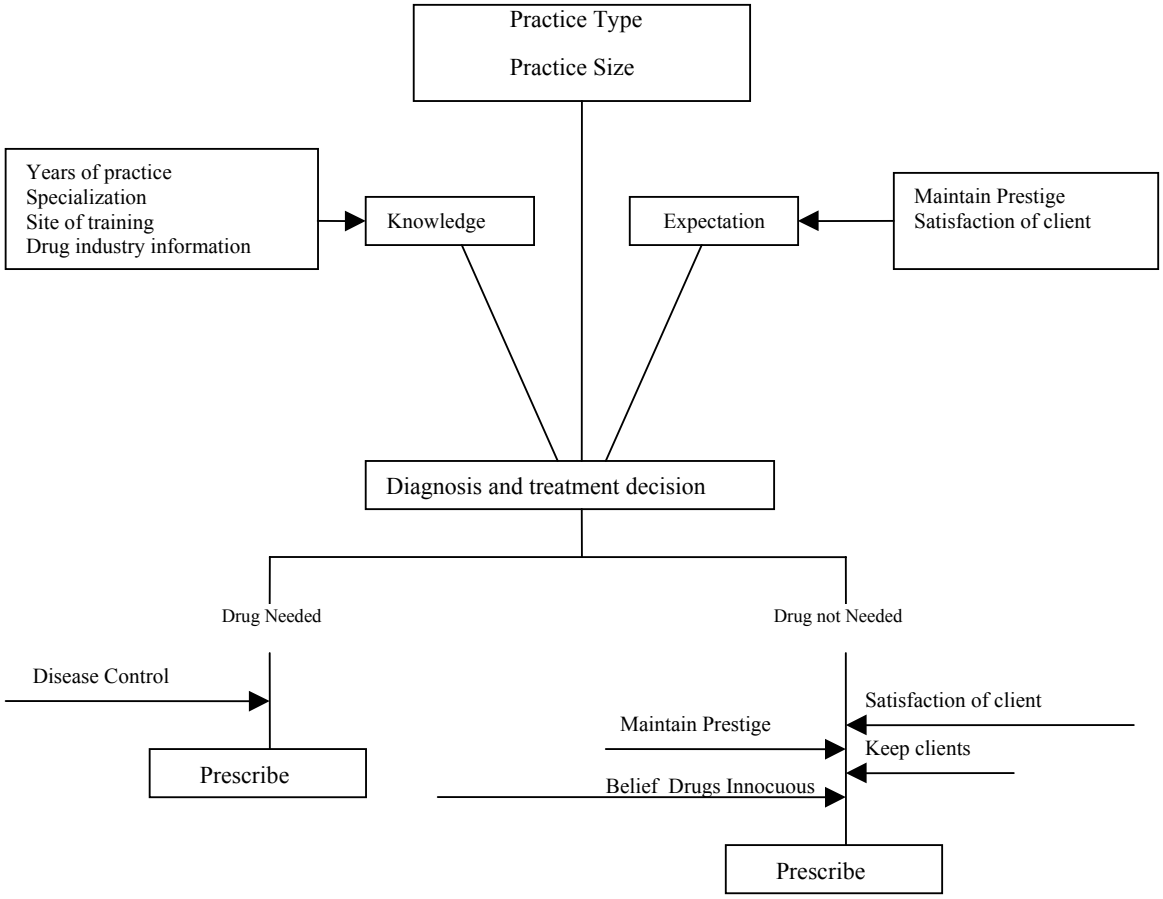
4.2. RELATIONSHIP: PRESCRIBER-CONSUMER OF THE DRUG.

To analyse the physicians' drug prescribing behaviour, it is important to dissect the intervening elements during the consultation. The principal motivation of the GP is the satisfaction of his patient. His objective is to identify the disease of the patient and to find the remedy by respecting the constraints which are imposed to him: waiting of his patient, the level of activity to be supported and the means, which are allocated to him to carry out his act (fee of the act). The doctor does not have direct profits in the recommendation of the pharmaceutical product. There exists, therefore, other effects which influence the rise of the drugs' prescription: the ageing of the customers, establishing customer loyalty…
These factors can be classified in four essential categories (Diagram 2):

- the effect of the pressure of the patients for obtaining a drug prescription;
- the influence of the institutional and environmental factors (for example, the local prescribing standards or effect of competition);
- the role of the information and the knowledge about the pharmaceutical products;
- specific factors related to the practice of the doctor.

Several studies showed the importance of these factors. Rochaix (1995) showed, by materialising the medical act and the remuneration, that the length of the ordinance is often proportional to the level of uncertainty in the diagnosis of the practitioner.
A study undertaken by EDDY (1986) shows that in uncertainty situation a physician may find it beneficial to adopt the same behaviour as his colleague. If a practitioner had suddenly prescribed less, it could fear to be regarded as offer a service of less quality. In parallel, the FUR and SERMET (1996) noted that in case of the pathology, the patient makes a pressure to physician for preserving the treatment to which he has habit, even if it is other treatment which could be beneficial for him. GRECO (1993) underlines that the practitioner must permanently avoid the influence of a patient whose medical knowledge is overall non-existent. The study carried out by ANDERSON (1993) on the satisfaction of the patient in the case of a chronic disease like the diabetes, puts a flat at the concepts exposed previously. Its study shows indeed, that the doctors who present their relation with the patient like a partnership, have customers which express the highest degree of satisfaction. These doctors are generally in exercise for a long time that those which control the relation with the patient.

Diagram 2. The factors influencing the GPs behaviour during the prescribing (All,1996)



4.3.. ENVIRONMENT.

Another axis is to study the influence of the non-medical parameters. There are socio-economic behaviours of physicians, which influencing the prescribing behaviour. For example, the medical concentration provokes a phenomena of group, of conformism. Lancry and Paris (1997) showed the existence of an individual practice adaptation to the average prescription of the other physicians of the commune. This established fact is relatively independent of the size of the commune.
On the other hand, more " competition " between general practitioners is strong, more this conformism is important. The physicians tend to conform to the attitude of his colleagues. By FRIEDSON It is called " medicine subordinate to the medium ". Also, it was observed a difference in the attitude of the health professionals as regards prescription of the products innovating according to the area and the medical density. It is to some extent the implementation of the theory of Schumpeter. This one suggests that in a strong competition, the innovation is means to remain or become the leader. Any doctor, when competition is strong, offer the products of last innovation to his patients. DUPUY (1974) show: when the patient comes to consult a doctor, he expresses the assistance for him. The prescription arises then as the sign the capacity of intervention of the physician. For Dupuy, to use technical means for deal with problems of human relations frequently leads to bad performances. Pauly (1980) shows that the pharmaceutical prescribing is one of the action variables of the practitioner.

Another nonmedical factor is the structure of medical care. In France, we distinguish two sectors of medical activity (public and liberal), but also different types of a payment of the medical acts (liberal sector).Practitioners can be sector 1 physicians who face fixed reference

prices or sector 2 physicians who can freely set their own prices. It was shown a convergence of the physicians behaviours from the same category. Even, the age of the practitioners plays a part in the disparity of the prescribing behaviour. For example, the various statistical and econometric studies reveal, that on average, the level of the prescription of the young doctors is less important, that that of the older doctors.

5. Micro-econometric analysis.

5.1. DATA

The sample we use is drawn from the administrative information about French self-employed physicians collected by the public health insurance. Our representative sample is a random draw of about a tenth of the whole population. At a more aggregate level (the department), we have annual series related to physician and his environment. The panel covers years 1981-2000 and is unbalanced. After controlling the quality of data we get a final simple of 7536 general practitioners in activity. Each one belongs to one of four following groups:

- first group includes the GPs ladies working in the sector with fixed price (sector 1). Manpower of 1273 physicians.
- second group takes into account the GPs men, who chose sector with fixed price (sector 1). Manpower of 5009 physicians.
- third group is formed of the GPs ladies, who practise in the sector of free price (sector 2). Manpower of 305 physicians.
- fourth group includes the GPs men working in the sector of free price (sector 2). Manpower of 949 physicians.

5.2. MODEL

For the econometric analysis the data has information in two dimensions: temporal dimension and individual dimension. There are two indices with the following characteristics:
· index *i* characterises the physician considered
· index *t* characterises the moment when the observation was carried out (year).
The panel selected is unbalanced. That complicates calculations, but preserves a good representativeness of the sample and makes it possible to keep the maximum of information available. To carry out the study we adapted the next structural specification with errors components:

$y^*_{it} = xit \,.\, \delta + uit$ (* depend of the group estimated)
with $u_{it} = \alpha_i + \xi_{it}$,
where
α_i : individual specific effect ,
ξ_{it} : a random perturbation.

The level of drugs' prescription y_{it} of physician *i* during year *t* depends on the determinants: population ageing, epidemics, technological progress. It will be taken into account in a way which amount to assuming that these variables affect all physicians identically. Also, the level of drugs' prescription depends on individual characteristics of physician and environment characteristics. The individual effect permits to take account a unobserved characteristics of the demand and of the physician behaviour. Equations have been estimated by methods in order to obtain consistent and efficient estimates (for details see Sevestre, 2002).

5.3. DESCRIPTIVE STATISTICS

For analysis of physician's drug prescribing behaviour we used the variables taking into account the different GPs' characteristics of the activity and of the environment.
To be able measuring the influence of the individual characteristics we defined the following microeconomic indicators:

- the level of pharmaceutical prescription by acts called " act prescriber": allows to measure the cost of the drug's prescription per encounters
- the dayly average number of encounters between the physician and his patients
- numbers of sick leaves' days by acts "prescriber": allows measurement the average value of the number of sick leaves' days prescribed per encounter
- fee gained by encounter

The construction of these variables was carried out in two times. Firstly, we defined the number of encounters between GP and his patient per day of activity. Therefore, it was necessary to define the number of the acts, which have led to a prescription. They are the acts called "acts prescribers", such as consultation (office visits), home visit and surgery act. Secondly, we built the principal indicators by using the variables defined previously. The variables created are quoted higher. It should be added, that for monetary values we took into account the inflation for to be able to hold in account the variation of volume of prescription, which makes it possible to take into account a modification of economic agents' behaviour.
Others variables were created:
- seniority of the general practitioner. This variable measures, per each observation, the period during which the physician has medical activity.
-office visits and home visits as a percentage of total acts.

The environment, where the physician is working, is measuring by macroeconomic variables, who characterise the offer of health care, the local standards and the existence of the indirect influence of the pharmaceutical industry. There are:

- medical departmental density of the general practitioners. The indicators measure the number of general practitioners per Hundred thousand inhabitants, per department and per annum. In our study the density is used like a measurement of the intensity of the competition and the shocks of offer, which the GP undergoes in his zone of activity.
- density of the chemist's shops: the same construction, that in the case of the general practitioners density
- average of the general practitioners' pharmaceutical prescription per department and per year.

In table 2 we have presented the statistics of the microeconomic variables.

Tableau 2. Statistic of individual characteristics.

Variable	**Ladies**		**Men**	
	Sector 1	**Sector 2**	**Sector 1**	**Sector 2**
	mean	mean	mean	mean
Seniority	10,29	12,56	14,05	15,76
Daily activity	12,12	8,88	18,51	14,58
Numbers of sick leaves' days	5	2	9	6
Level of pharmaceutical prescription	34,82	28,53	35,36	32,11
Share of office visits and home visits	0,95	0,88	0,95	0,89
Income	17,07	25,03	16,75	23,73

After the reading of the results, the first important remark comes from the fact, that the values characterising the men are more important, that those characterising the women. All values characterising GP of the sector with fixing price are more important that those caricaturising GP working in the sector of a free price, except for the seniority and the income. The number of the patients examined by the physician is higher in the sector 1, on the other hand the level of income is higher in the case of free fee. It is remarkable, that in means, the men and the ladies doctors of sector 1 carry out 4 meetings per day more than their colleagues of sector 2, but gain by meeting is 8 Euro in less. It should be added, that it is important to take account of the "heterogeneity " of the acts. Let us take the simple example of two GPs who practise two types of acts: that which visits its customers at home will make less acts per days than other GP which consults in his cabinet. However, the first will integrate the price of his displacement in the cost of his act. Thus, during one day with the same level of prescription per act, their level of prescription compared to their fees will be different. A multiplication of the acts does not induce a multiplication of the fees in the same proportions.
Compared to the national average of pharmaceutical products prescribed by act prescriber which is established to the 34 Euro, the difference is more important for the women of the sector two (difference of 6 Euro by encounters physician-patient). For the other categories the variations are not very important (the same level for the women of sector 1, 1 Euro in more for the men of sector 1 and 2 Euro in less for the men of sector 2). The level of pharmaceutical prescription is higher for the GP of sector 1, but the same for the ladies physicians and the men physicians. The GPs men have more important seniority than the women. The “big” prescriber of sick leaves’ days are men working in the sector with a fixed fee. The “little” prescriber are the ladies working in the sector with a free fee. The difference of their ordinance is 7 days. The dissymmetry of the distribution of two types of prescription (pharmaceutical and sick leaves’ days) can be explained by the specificity of the clients.

5.4. RESULTS AND DISCUSSION

Table 3. Estimated coefficients

Variable	Ladies Sector 2		Men Sector 2	
	Parameter Estimate	Standard Error	Parameter Estimate	Standard Error
Seniority	0.24765	0.01972	0.12739	0.01005
Daily activity	-0.08365	0.01418	-0.05738	0.00781
Numbers of sick leaves’ days	0.05199	0.00601	0.08955	0.00373
Level of pharmaceutical prescription (average)	0.33195	0.04678	0.60617	0.02176
Density of GPs	0.44761	0.10007	0.17835	0.05161
Density of the chemist’s shops	-0.77209	0.17858	0.24470	0.09797
Share of office visits and home visits	0.07808	0.01861	0.09208	0.00871
Income	-0.08954	0.04848	0.02435	0.02334

Variable	Men Sector 1		Ladies Sector 1	
	Parameter Estimate	Standard Error	Parameter Estimate	Standard Error
Seniority	0.09231	0.00238	0.08011	0.00519
Daily activity	-0.02409	0.00212	0.01326	0.00412
Numbers of sick leaves’ days	0.09435	0.00158	0.05460	0.00308
Level of pharmaceutical prescription (average)	0.69229	0.00537	0.73425	0.01428
Density of GPs	0.43616	0.01495	0.43452	0.04256
Density of GPs	-0.35618	0.03180	-0.54873	0.08536
Share of office visits and home visits	0.29073	0.00618	0.11125	0.01563
Income	-0.10689	0.01095	-0.10312	0.02795

(*)The coefficients are non significant (5%).

The indirect influence of the pharmaceutics industry was measured by two variables. The first estimates (table 3) show, that the physician experiment has a significant influence on the level of the pharmaceutical prescription. Certain researchers noticed that it exists a positive correlation between the seniority of the physician and the age of the patients. Also, the old people are the first consumers of the drugs. In general case, the GPs keep their clients and this is why the level of drugs' prescription is higher with seniority of physician. This fact is confirmed in the case of the sector 1 GPs ladies of and sector 2 GPs men. But, the "biggest" prescribers are the sector 2 ladies, who place themselves on the third level compared to the seniority of the sample. That explains by the fact, that in our study the variable seniority measures at the same time the medical competence of the physician and his knowledge of the pharmaceutical goods. The experienced physician needs less time for defining of disease and finding the remedy. If the doctor is not certain of diagnosis, he will have tendency to prescribe the drugs in a sufficient number for compensating his level of uncertainty. In the same time, if the physician do not have a sufficient knowledge about pharmaceutical goods, he will tend to prescribe the drugs with strong added value, which are the subject of the intensive laboratories' communication. The variables of the density measures the indirect influence of pharmaceutical laboratories. To have important number of chemist's shops per department make to play a competition between the laboratories' representatives. The physician improves his knowledge of proposed pharmaceutical products without being very close to a particular producer. The estimated results show that sector 2 ladies are influenced by communications of the pharmaceutical laboratories.

The medical density made it possible to measure the effect of competition between the physicians. All medical population is influenced by this effect. The increase of the liberal physicians density make increase the irrational drugs prescribing probability. The drugs prescription will be used for keeping of clients. This effect is more important for sector 2 ladies doctors. By opposing to competition effect, the local standards effect is more important for the sector 1 physicians. The sector 1 GPs will adopt the same behaviour as their colleagues and will make a irrational prescriptions.

Structure of the professional activity influences the probability of prescription. Sectors 1 physicians have a number of the consultations and visits more important, than their sector free price sector colleagues. That effect is justified by the fact that the consultations and the visits are acts known as acts prescribers. But, the effect of the activity variable needs to have detailed analysis . One can easily suppose, that the duration of the act allows a more precise diagnosis and more targeted prescription. The time of the consultation also intervenes in the index of satisfaction of the customers. Indeed, the patient is comparable to a consumer of confidence good and the apprehension of the good quality the is dependent on two factors: duration of the consultation and the remedy. The doctors seek to maintain the index of satisfaction of the customer on imposed level by rationing the time of the consultation. There is an assumption put forth by certain economists, who advance the idea of a compensation between the duration of the consultation and the volume of the regulations. The obtained estimates confirm stronger assumption: for the patients the volume of the drugs' prescription is a signal of the care quality. For better understanding this phenomenon, it is necessary to analyse the estimators of the income and of a daily. The liberal sector doctor has the obligation to manage his funds and to be able to pay the loads of his activity. After choosing to exert in the liberal sector each doctor fixes a level of turnovers to be reached and which will satisfy his needs. The sector 1 GPs have only one means for increasing its income: to increase the number of encounters with the patients. The effect of income variable is negative for that category of the GPs. The sector 2 GPs can fixed freely the price of the act. This is why the effect of income is non significant for that categories of physicians. But, the effect of the activity variable is the same for all categories of physicians (except sector 1 ladies). It shows, that the irrational prescription will be used by GPs like a signal of quality in the case of fall of their activity, when the turnover is lower than the objective turnover. The difference for the sector 1 ladies explains by the fact, that the women have one more constraint: family constraint. This is why the women GPs activity and prescribing behaviour is different of their colleagues.

We founded a effect of complement between a pharmaceutical prescription and a prescription of sick leaves' days. The degradation of the health, which imposes the forced rest, also requires a consumption of drugs.

This study aimed to understand the main determinants of inappropriate physician prescribing practices. It suggests that knowledge, by itself, does not always determine prescribing decision. The result of this study makes possible to define trends to limit over-prescriptions and to define the inciting policies on the pharmaceutical regulation to ensure a greater effectiveness of the ambulatory medicine regulation. For define the inciting policies it need to take account the waiting of the medical population different categories.