

Moral Hazard in Health Care Markets? Evidence, Implications, and Strategies

The healthcare market can be defined as all the economic activities associated with the **production, distribution and consumption** of goods and services in the **healthcare industry**.

Driven by the necessity to **maintain and improve people's health**, this market is characterized by **interactions** among all the entities involved in the healthcare industry: physicians, hospitals and clinics, pharmacies, pharmaceutical companies, medical device manufacturers, or even health insurance companies. [18] They also have to cope with **government regulations and technological innovations** which have a constant influence on the market and its functioning.

All these stakeholders have a part to play in a specific context and on a specific scale, from **research**, to **manufacturing** products, to **administering care** to the patient, to **managing** the health institutions and the health policies. [22]

Despite its importance and far-reaching implications, this market is **far from being efficient**. Indeed, the phenomena of **moral hazard** and **adverse selection** are not uncommon when it comes to this market, especially in the context of health insurance.

We can talk about **moral hazard** when individuals who have insurance coverage that reduces their financial responsibility for medical expenses are inclined to utilize more healthcare services. Furthermore, we are in the presence of **adverse selection** when

individuals who anticipate needing more medical care are more likely to opt for plans that offer greater coverage when having the choice between different insurance plans. [29]

We will now focus our analysis on the implications of moral hazard. In the healthcare market, this phenomenon arises due to the presence of coverage, i.e. health insurance. Indeed, people protected by health insurance may be more inclined to seek for medical services that **they would probably not have solicited if they had to financially assume its cost**.

In addition, the presence of **asymmetric information** in the healthcare market tends to exacerbate the moral hazard, leading to **higher healthcare costs** and **inefficiencies in resource allocation**. In other words, since insurers **do not have perfect knowledge** about their insured's true health status and behavior (that can put their health at risk), that may lead to an overuse of healthcare services or carelessness about preventive measures related to health. [14]

Finally, all these implications raise the **principal-agent problem** and its close relation to moral hazard. Indeed, the principal-agent problem occurs when there is a **misalignment of interests** between two parties (the *principal* and the *agent*) where the first one delegates the authority to make a decision to the other one. Looking at the healthcare market, patients (principals) **delegate their healthcare decisions** to healthcare providers (the agents), because of the experience and expertise they have to dispense appropriate care. The problem arises since the agent's behavior could be **driven by other incentives or priorities** than the principal ones. In a more

explicit way, if the agent is driven by revenue generation and decides to **act in his own interest rather than the benefice of the principal**, he could prescribe unnecessary tests or treatments which leads to an increase of healthcare costs, or even expose the principal to potential unnecessary risks. In this example, we note that the agent has used the asymmetry of information (the principal's **lack of information** considering medical knowledge) to take advantage of the situation. [23]

After providing **empirical evidence** of moral hazard in healthcare markets and discussing its **implications**, we will focus on **strategies and mechanisms to address moral hazard**.

Does health insurance increase healthcare spending ?

Now that we have a better understanding of moral hazard in the healthcare market, we can investigate and see if health insurance **increases healthcare spending**.

In France and in 2021, healthcare costs represented **9.1% of GDP** (or 226.7 billion euros). This corresponds to an average of over **3,000 euros** per inhabitant [27]. Having health insurance gives agents the confidence to go and see a doctor. Indeed, knowing that some or all expenses will be reimbursed gives them freedom of decision: they are **not constrained by price** and can choose freely. Conversely, those with no insurance, and therefore no financial advantage, will think twice before spending on healthcare, as it will come out of their own pocket.

A study published by Insee in 2008 [3] analyzes this hazard in the field of healthcare. This analysis compares the impact of insurance on the medical consumption of employees with supplementary health insurance with those without. Taking this type of insurance into account avoids selection bias and allows us to assume that this insurance is independent of the risk of illness. As Valérie Albouy and Bruno Crépons wrote, this "allows us to estimate what the average medical consumption of people without supplementary insurance would be".

Their research shows that the probability of going to the doctor at least once a year is **75% for those without insurance and 95% for those with** (a 20-point difference). Similar results can be found in other countries such as Chile [37] and Iran [17]. Moral hazard does not depend on the type of insurance or the country's healthcare system : it depends on the agents.

This also raises the question of healthcare overuse. Is it always necessary? A study published in 2017 by the Canadian institute for health Information highlights this issue. This study reports on **unnecessary care in Canada** : It revealed that in Alberta, **30%** of patients complaining of back pain had at least one x-ray (even without any worrying signs) [44]. It is therefore important to take this aspect into account when talking about moral hazard.

Implications of Moral Hazard in Healthcare Markets

There are a lot of different types of outcome from moral hazard on the healthcare market,

we are going to try to highlight most of them. Overall, moral hazard has a **bad impact** on the market's efficiency but under certain circumstances and context, moral hazard can have a positive impact [31].

The first one we're going to discuss is the **asymmetry of information between the prescribers and the patients**. It mostly happens when your doctor advises you on your medication, or with television advertising, and it's called « **Direct to consumer advertising** » [12]. This is the most common form of health communication in the US. There are a few positive impacts, for example, it can push people to « **seek for more information** from health care » [12]. It can also influence people to change their medication or to **ask for specific medication** to their prescribers. Another study tried to measure misleading claims in Television advertising for drugs, and they found that : « Of the most emphasized claims [...] **33 % were objectively true, 57 % were potentially misleading and 10 % were false.** » [15]. This shows the negative impact of misleading marketing on patients' behavior. However, patients are not the only ones affected by misleading communication. **Doctors and prescribers can also be affected**, this is what we can call the **prescription bias**. An article focusing on the amount of drug prescribing done by physicians shows that : "Though **narrow prescribers are more likely to prescribe highly advertised drugs**, few physicians prescribe these drugs exclusively"[24] which show the impact of advertisement on the behavior of physicians. There are also cases of "corruption" of doctors by the pharmaceutical industry. This **corruption is indirect and takes the form of gifts of all kinds, such as meals, free drug**

samples, honoraria and free tickets to scientific conventions. Scientists have tried to measure the number of practitioners who have benefited from this type of service and have found that : "**Free samples are used as a marketing tool** and have been linked to prescribing of high-cost brand-name drugs over lower-cost generic alternatives." [25], which is clearly a case of moral hazard leading to market inefficiency. They also showed that **these gifts** to practitioners **had decreased over time**, comparing their results with a 2009 study, but that it remained a common practice. They have the following results : "Compared to 2009, fewer internal medicine physicians reported receiving all types of financial payments, with the greatest decrements related to food/beverage or tickets to sporting or cultural events (75% vs 42%) and speakers bureaus/consulting/advisory boards (18% vs 2%. Among cardiology specialists, the only significant differences were for drug samples (82% vs 60%) and speakers bureaus/consulting/advisory boards (33% vs 8%)"[25]

There is also a report from "ARTE", speaking specially about this subject, and **how this type of corruption is set up**. [1]

One of the **most common consequences** of moral hazard in this market is the **setting of a price for a drug or treatment that is too high in relation to its real cost** (production and research). To study this phenomenon, we first used an article on drug pricing [30]. We can't go into detail here, but in France, the agency responsible for negotiating drug prices is the "Haute Autorité de Santé". This committee is responsible for **assessing the therapeutic "added value" of new drugs**. It is

made up of medical experts and pharmacists who will carry out the medico-technical evaluation, i.e. the various tests and experiments required to determine whether the drug in fact constitutes a medical advance.

There are a lot of players and things to consider when it comes to drug pricing. As drugs are partly reimbursed by the social security system, there are criteria such as the **number of patients concerned** (volume sold) which will influence the negotiation. The **players involved** are the **HAS** and **pharmaceutical companies**, as well as **patient associations**.

Production, research and investment costs are also **taken into account**. With so many players and so much at stake, it is obvious that **this situation gives rise to moral hazard**. For example, we choose an article talking about another article published in the Journal Health Economics[13], talking about the prices of innovation in drug development. In fact, these researchers have estimated the **average cost of developing a new drug at \$802 million**. These figures are questioned by the authors, who point out that : “the DHG 2003 cost estimates are roughly **two to four times as high** as other estimates of pre-approval drug R&D costs”[28]. To justify their claims, they will cite reasons why the figures are manipulated. First of all, all the **figures they used** were **supplied by pharmaceutical companies** and could **not be verified by independent parties** because they were confidential data brought by the company using a survey. Next, he explains that **pharmaceutical companies have an interest in overestimating** research and development

costs, because it's directly linked to **drug prices**.

There is also **Moral Hazard for consumers** in the Healthcare Market, but it's hard to find **empirical evidence to support this type of assumption**. The first one is the **incentive to behave more "dangerously" when you know you're insured**. The second one is the **incentive to over-medicate in a system where healthcare is partially reimbursed**. Both of the moral hazard phenomena are discussed in the article “Moral Hazard and Consumer Incentives in Health Care” [43]. There is also a bias in the way R&D is oriented in pharmaceutical research. The article "Ghosts in the machine: publication planning in the medical sciences"[38] shows that **publication planning** in the medical sciences is a process that can **lead to bias in pharmaceutical R&D**. It highlights how **pharmaceutical companies** can influence the research, writing and publication of clinical results in order to promote their products in a biased way.

As we have seen, **moral hazards lead to under-efficiency** in the healthcare market. All players can fall victim to moral hazard, just as they can profit from it. Thus, overall, **moral hazard involves an overestimation of the price of drugs, health insurance and the cost of health care**.

We're now going to talk about all the **potential distortions possible** in resource allocation and quality of care and what they can lead to. As we already say, there is a tendency to overestimate drug price by overvaluing the real price of production or research. Thus, as most of the time the drugs sold on a market are **partially reimbursed by the public authorities**, in the case of **France**, this reimbursement can **range from 100% to 15%**

depending on the type of drug [34]. On a macro level, the resources of public authorities are limited, which means that the state must decide which drugs to reimburse. So, if drug prices are artificially inflated, this means that the state deprives itself of other drugs in return or decides not to reimburse that drug or therapy. In France, we're lucky that the state reimburses drugs, but in countries like the USA, this creates inequalities in access to care.

An example of this type of discrimination is Sovaldi, a drug created by the Gilead laboratory to treat hepatitis C (a fatal disease)[39]. When this drug goes on sale, it is the only one available to treat this type of pathology. When it was launched in the USA, the drug cost \$1,000 per tablet[19]; it was sold for half that price in Europe, and after lengthy negotiations, the price was halved again. This drug alone cost the social security system over 1 billion euros, making it the most expensive drug in the system [9].

In this example there are a lot of distortions we can talk about. First of all, people with this disease are in mortal danger, so they'll be willing to pay more than they have to to get it. There is also a situation where the price of medicines is too high and so they prefer not to treat themselves.

Secondly, the company has a monopoly, which means it benefits from all the advantages associated with this position: it is free to choose its price, to control the quantities sold, and with the patent system, it is able to hold its own in its market. Finally, hepatitis C is a disease that affects a large number of people (in France, it's estimated that around 200,000 people are affected

[21]), which has prompted the public authorities to purchase this drug.

Another example of price gouging is gene therapy, which costs several hundred thousand euros. For example, the Kymriah treatment for leukemia (blood cancer) costs 320,000 € and is reimbursed at 65% by the social security system [26]. This is also the case for the Yescarta treatment, which also treats leukemia [42] and costs on average 400 000 \$ [20]. The problem we're pointing out is that for diseases like cancer, which is the leading cause of death in France, with just under 400,000 new sufferers each year [8], the social security system is unable to finance this type of treatment. This creates inequality of access to treatment, since only those who can afford it will be able to afford it.

To sum up, the main distortions in the healthcare market are characterized by under-allocation of resources. By inflating drug prices, pharmaceutical companies are setting up a system for capturing public money. As a result, public authorities are forced to make choices about which drugs to reimburse. This is to the detriment of the state and patients, who pay a high price for drugs.

To study how insurance contracts are constructed with the aim of reducing the effects of moral hazard, we will use the article "Health Insurance, Risk, and Responsibility after the Patient Protection and Affordable Care Act" [6], which looks back at the Affordable Care Act, an American bill designed to make the state the insurer of the elderly and the poorest. In the course of this article, the researchers will review the risks

taken by each of the parties involved, and the methods used to determine these contracts.

First, we'll describe **how the US healthcare insurance system works** in general, and what the "Affordable Care Act" changed to the system. We won't go into too much detail here, as it's a very complex operation. Then we'll explain **how insurance contracts are designed to reduce the effects of moral hazard**.

In the US, there are **4 healthcare risk distribution mechanisms**, and one of them is working poorly. The one working poorly is the individual and small-group market. The author sums up the US health care risk distribution as a **"wobbly stool"** [6], as one of the pillars is dysfunctional, it has a negative impact on the whole system.

The **first pillar** is named **"Medicare"**, it concerns **eligible disabled people** (i.e. those who have contributed sufficiently (by their own means or through their legal guardians) and **eligible senior citizens**, it is divided into 4 parts.

The first part covers **"inpatient care, hospice care, and some health services** and is financed entirely by a **flat percentage tax on wages paid over the lifetime"** [6].

The second one is for **medically necessary or preventative services** and financed by a **flat percentage tax on wages and on premiums**.

The third one includes **prescription drug medicine** and is financed in the same way as the second part. And the last one covers **prescription drugs** and is only financed by premiums.

The "Affordable Care Act" impacts risk distribution by **increasing resources** through **higher payroll taxes**, they also reduce the part played, they have also **reduced the proportion of drugs paid for by individuals** among other minor changes.

The **second pillar** is named **Medicaid**, and covers **poor people**, more precisely, these are residents with **household incomes of less than 133%** of the federal poverty level. For example, in 2023, for a **family of 5 people**, if the overall revenue of the household was beyond **46 736 \$** [45], they will benefit from Medicaid. With the **Affordable Care Act**, states are free to choose this threshold, but are encouraged to push it up to **200% of the federal poverty**. If we take our previous example, it means that a family of five can now benefit from Medicaid if **they earn less than \$70 280**, which **covers a larger amount of people** as the median salary in the US is 72 228 \$ for men and 57 096 \$ for women. [5]

The **third pillar** is about **individual and small group insurance**, the main feature of this insurance is that it is aimed at people who have **no state or employer-sponsored coverage**. It is also unique to each state. There is also a principle of **"Open Enrollment and Guaranteed Renewal"** which means that this type of insurance **must accept everyone that chooses to apply or renew this health insurance**. It means that health insurance **cannot choose anymore** who they will insure. This implies that it's **easy for high risk individuals to join the insurance pool** and it means that according to the authors, this **"poses a challenge to the solidarity equation by creating the possibility that people will**

violate the mandate unless and until they really need serious health treatment.”[6].

The last pillar is for the large group market, it concerns insurance by large companies. The main change with the Act is that **large employers (entities with more than 100 employees)** have to give minimum coverage to their employees.

We are now going to talk about how the **state discourages moral hazard**, as discussed in the third pillar. The first way is **wellness programs** that offer rewards when **individuals satisfy health standart that are healthy enough to prevent disease linked to unhealthy behaviors**.

This type of wellness program has specific characteristics. First, it must be **improving health conditions that reduce disease** and it **doesn't have to be too time-consuming**. These programs must **not be discriminatory**.

The programs insist that you do not have to be the healthiest person in the world, but to be **the healthiest person as you can**, which is achievable by anyone. **The rewards** for those who succeed in completing the required tasks come in all shapes and sizes: **gift cards, experiences, concert tickets, etc.** Initially, **these programs were set up by companies and large corporations**, and the public authorities are seeking to copy this type of incentive, especially within the framework of this law. This is particularly the **case for people benefiting from the "Medicare" or "Medicaid" pillars**. By focusing on keeping its population healthy and behaving well, **insurance companies will spend less**.

Finally, let's talk about the case of “small groups and individuals” who benefit from this

kind of insurance, we say that **it will be easy for risky players to enter the market**.

The author will compare lemons and peaches, using the **famous example of Lemons's car** to explain the situation. On the insurance market **there are people who are risky (the lemons) and people who are safe (the peach)**. As long as we can **distinguish individuals by risk the price of insurance is adapted to the actor and the risk he presents**. Under the law, they will no longer be able to make this distinction, so they will be **obliged to raise insurance prices for everyone and harmonize prices to make up for the losses**. This is another mechanism to reduce the effects of moral hazard, but it costs all policyholders.

How to address moral hazard ?

We have seen so far that the phenomenon of moral hazard is a reality in the healthcare markets, based on empirical evidence, and the negative consequences associated with it. We can now focus on **the mechanisms and strategies** that can be implemented in order to **mitigate moral hazard** in healthcare markets.

In the first instance, we can evoke **cost-sharing mechanisms** as a solution for hindering moral hazard. Indeed, we talk about a cost-sharing mechanism when the cost of a product or a service is **split between several agents** who financially contribute to it. The amount of contribution (or rather the part of the total cost supported) is **not necessarily the same for all agents**. In the healthcare market, the service considered is the access to care which can take several forms, associated with healthcare costs. This

cost can be **fully or either partly covered by insurance**, in this second situation a portion is borne by the individual and we talk about an "out-of-pocket" payment, which implies a cost-sharing between the insurance and the insured. It depends on the healthcare plan to which the insured has subscribed, and also on its choice to involve healthcare providers legally affiliated to its insurance company. [11]

Cost-sharing mechanisms can narrow moral hazard insofar as the presence of "out-of-pocket" payments induce the individual to **limit risky behaviors and overutilization of health services**. Indeed, instead of a complete care which has **no impact** on the individual, cost-sharing implies **financial repercussions** on the individual in response to its behavior and its choices.

These mechanisms are therefore intended to **rationalize the behavior** and the choices regarding health of the principal, by guaranteeing access to care with a financial support for health costs while empowering the individual with cost sharing remaining at his expense.

A 1985 experiment conducted on 3975 individuals randomly assigned to various health plans in terms of **coinsurance rate** (part of the total cost at the expense of the patient) shows that the higher the coinsurance rate is, **the lower the solicitation for emergency department services is**. Indeed, subjects with a 95 percent plan had 42% lower spending on emergency department services compared to people totally covered by insurance, and around 16% lower regarding people with 25 or 50 percent plans. Furthermore, individuals with higher coinsurance rate were **less likely to**

use the emergency department services for less serious conditions. [32]

Thus, if lower healthcare spendings induced by lower coinsurance rate could appear as a constraint by price that weighs on lower incomes and discourage people to use healthcare services, this study indicates that **coinsurance as a cost-sharing mechanism tends to reduce overutilization of healthcare services**, especially saturation of emergency services for illegitimate reasons. Individuals make more informed choices when they have to take financial responsibility.

There are actually **other forms of cost-sharing** in addition to coinsurance, whose existence mostly depend on the country considered. Indeed, we can talk about **copayments**, where patients are required to pay a fixed amount for each healthcare service or each prescription drug they get. [10]

Implemented in Germany in 2004 in the form of a fixed contribution of 10€ per quarter for doctor visits, a 2006 study shows the inefficiency of this incentive for reducing health costs. Indeed, they did **not observe any significant effect of copayment on doctor visits**, so that this measure was canceled in 2012. [4]

Meanwhile, studies conducted in the US or in Canada indicate a **significant efficiency to reduce the number of doctor visits**, like the one led by Roemer M. & al. in 1975. [36] Nevertheless, this study which compares two cohorts of poor people as part of a large-scale experiment where the treatment group supported a copayment of 1\$ for the first two doctor visits and 0.50\$ for the two first prescription drug each month, shows that if the visits to the doctor initially decreased

among the treated individuals, **hospitalization rates increased later, more than in the control group**. This suggests that because of the copayment, individuals from the treatment group probably **neglected primary care for financial reasons**, resulting in emergency or hospital care once their condition has worsened.

Ultimately, this incentive to address moral hazard in order to reduce overutilization of health services and therefore unnecessary health costs, had a perverse effect since it has encouraged individuals to **use health services less than they should have**, resulting in a lack of preventive healthcare. This has subsequent consequences which are manifested by an increase in use of hospitals, emergency services and treatments, **more expensive than the initial care that would have been necessary**.

It is therefore necessary to ensure that the strategies to address moral hazard do not provoke **distortions** in the choice to consult a health professional when it is really necessary.

Finally, **deductibles and rebates** could be cited as other cost-sharing mechanisms.

Deductibles are an "out-of-pocket" payment **amount spent on healthcare which must be reached before the coverage by the insurance is effective**. Beyond this threshold, healthcare costs are covered by insurance.

Rebates consist of a **starting amount of money from which is subtracted all the healthcare spendings** of an individual in a given year, of which the remaining sum (if positive) is paid to the individual at the end of the year. It could appear as a way to **reward people for their moderate use of healthcare**

instead of financially "penalizing" them each time they have recourse to the healthcare system.

A 2019 study conducted in the Netherlands **compares the effectiveness of these two forms of cost-sharing**. [35] This comparison was made possible because in 2008, the cost-sharing system in the Netherlands, which only applied to individuals over eighteen years old, switched from rebates (2006-2007) to deductibles (2007-2013). Their results show that among people around eighteen years old, if the two mechanisms have reduced healthcare costs, **deductibles were more effective than rebates**. Indeed, they found that one euro of the rebate reduces healthcare expenditures by 18 cents less than one euro of the deductible.

This conclusion shows how individuals could **react differently depending on the cost-sharing mechanism** imposed on them.

Secondly, after studying the incentives from the principal's point of view, we can now explore mechanisms to **address moral hazard on the agent**, in other words healthcare providers. Once the principal has made its choice to mobilize healthcare services, for a legitimate motive or not, it is also the responsibility of healthcare services **to not over treat the patient with unnecessary care**, resulting in an increase of healthcare costs.

We can evoke **managed care models**. They involve **coordination and management** of healthcare services to control costs and improve quality of care, by creating networks of healthcare providers. Indeed, we talk about **utilization review** when **evaluating the necessity and relevance of a health act or prescription before providing it**, to ensure

that there is no overutilization of resources. We could also make **prior authorization compulsory** before providing a high-cost healthcare service to achieve the same objective of healthcare cost reduction. In the same way, implementing systems in favor of **communication and coordination** among healthcare providers could help to better monitor patients in need of care and therefore **avoid duplication** of health procedures. [41]

Some studies show the effectiveness of these managed care models, which leads to hinder moral hazard with the **reduction or increase of healthcare use compared to the optimal utilization** without moral hazard. [2] We have seen so far that certain mechanisms were causing patients to neglect the necessity to use healthcare services, resulting in an underutilization of healthcare services which leads to higher costs later, and it seems that managed care models could also prevent this issue. Managed care models can be used to **compensate for overutilization as well as underutilization** of healthcare services, ultimately leading to reduced healthcare costs.

Nevertheless, managed care requires a **complex organization** and cooperation from the healthcare providers as well as the patients in order to be effective, it is not uncommon to observe **ineffectiveness of these measures in reality**. A literature review realized on medicaid (program implemented in the United States to provide health insurance to low-income individuals and families) managed care gathers results of studies conducted in several states, shows how it is **complex to determine the real impact** of managed care since studies which

claim the existence of healthcare costs reduction were sometimes not peer-reviewed, realized on data that cannot be generalized, or even sponsored by managed care organizations or insurance plans, which **questions integrity and credibility** of their results. [40]

If we focus on specific provider incentives, we can cite several strategies. Indeed, some approaches favor **pay-for-performance** or **bundled payments**, respectively remunerate healthcare providers based on **achieving specific quality metrics** or patient outcomes, and paying them a **fixed amount for an episode of care**. [33] [7] A study aimed at comparing several different remuneration methods with a view to minimizing unnecessary costs shows that the best strategy necessarily depends on the conditions, the patients, the type of healthcare provider concerned or the distortion in the quantity of services provided (either overuse or misuse or underuse of healthcare services). [16]

Ultimately, we could conclude that if there are many ways to address moral hazard, these strategies need to be **adapted and relevant** to the context in which they are to be deployed. In addition to the specific healthcare system and the insurance structure, there are many factors involved in **the patient's or the healthcare provider's response** to the mechanism solicited, which could lead some strategies to be totally ineffective. We could also note that all **these strategies are not mutually exclusive** : they could be combined in various ways to address moral hazard effectively.

JEL Classification Codes related:

- ❖ I11: Analysis of Health Care Markets
- ❖ I12: Health Behavior
- ❖ I13: Health Insurance, Public and Private
- ❖ I18: Government Policy; Regulation; Public Health

Keywords: Moral hazard; Healthcare markets; Health insurance; Risk-sharing; Asymmetric information; Principal-agent problem; Utilization of healthcare services; Overutilization; Healthcare costs; Insurance coverage; Provider behavior; Resource allocation; Quality of care; Cost-sharing mechanisms; Coinsurance; Copayments; Deductibles; Rebates; Managed care; Provider incentives.

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