

The Role and Impact of Asymmetric Information in Health Insurance Markets

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Abstract: Asymmetric information is one of the most common challenges in the health insurance market, arising from the unequal distribution of knowledge between insurers and insured individuals. The existence of asymmetric information can lead to market inefficiencies, increased premiums, restricted access to care, and other adverse consequences that undermine the effectiveness and equity of the health insurance system. This article explores the concept of asymmetric information in health insurance, its causes, consequences, and manifestations through case studies from various contexts. Furthermore, it proposes potential solutions to address these challenges and highlights emerging trends and future directions. By understanding the intricate dynamics between insurers and insured individuals, this study offers valuable insights into mitigating the negative effects of asymmetric information and improving the overall efficiency of health insurance systems.

Keywords: asymmetric information, health insurance, adverse selection, moral hazard

1. Introduction

The health insurance market operates within a complex environment influenced by numerous interconnected factors. Among these, asymmetric information stands out as one of the most critical and pervasive issues. Asymmetric information refers to the situation where one party in a transaction has more information than the other, creating an imbalance that can disrupt market efficiency. According to Lotfi et al., when it is difficult to identify insured individuals with varying levels of risk, adverse selection is likely to occur. Moral hazard arises when certain variables carry a degree of uncertainty, such as the requirements for unnecessary medical services [1]. In the health insurance market, this phenomenon typically manifests as adverse selection or moral hazard, both of which have a profound impact on unique challenges and market dynamics.

This essay aims to comprehensively investigate the role and impact of asymmetric information on the health insurance market. By analyzing its causes, manifestations, and consequences, this study seeks to provide a deeper understanding of how asymmetric information influences market outcomes. Additionally, the essay explores potential solutions to mitigate its effects, including innovative approaches and policy interventions.

2. Manifestations of Asymmetric Information in Health Insurance

In the health insurance market, asymmetric information manifests in several distinct ways. One of the most common scenarios is that insurance companies often have less information about the health status and risk behaviors of potential policyholders compared to what the individuals know about themselves. This forces insurers to rely on general statistics rather than specific information about individual applicants, which complicates risk assessment and pricing processes. Consequently, insurers may set higher premiums for all insured individuals regardless of their actual health status. This penalizes low-risk individuals while trying to cover the potential costs of high-risk policyholders.

Another significant manifestation of asymmetric information is the lack of consumers understanding the complexities of insurance contracts. Policyholders often struggle to comprehend key elements such as restrictions on coverage limitations, exclusions and the implications of high deductions. Due to this lack of understanding, consumers may make inappropriate decisions when choosing an insurance plan, resulting in either underinsurance or overinsurance. The complexity of health insurance products further exacerbates this issue, making it challenging for consumers to gain access to many available options.

Adverse selection is a fundamental problem caused by the asymmetric information in the health insurance market. It occurs when individuals who are more likely to need medical services are also more likely to purchase health insurance, while healthier individuals are less likely to do so. This behavior may result insurance companies covering disproportionately high-risk groups, eventually driving up the overall costs for insurers.

Moral hazard is another important result of asymmetric information in the health insurance market. This happens when the probability of the claim is not external and changes according to the decision made by the subscriber [2]. After joining the insurance, people can change their behavior and decide to use medical care. In particular, the insured people may not pay much attention to their health because they do not bear the financial burden of all medical expenses. This may lead to an increase in demand for medical services, resulting in unnecessary treatment and an increase in overall costs.

3. Factors Contributing to Market Susceptibility

The health insurance market is particularly susceptible to the effects of asymmetric information and several factors contribute to the susceptibility.

Firstly, the complexity of medical conditions significantly hinders insurers' ability to accurately assess the risk profiles of the applicants. This complexity will expand with the cost and results of treatment, which may vary greatly depending on the condition, the patient's health, and the quality of care received.

Secondly, foreseeing future healthcare needs is quite challenging. Although some personal information, such as age and family history, could provide insights into the possibility of one person's likelihood of suffering certain diseases, a large number of health events still are unpredictable. This uncertainty makes it hard for insurance companies to determine insurance premiums that accurately reflect personal risks.

Thirdly, asymmetry between healthcare providers and patients contributes to inefficiencies in the system. Patients often rely on doctors for recommendations on necessary treatments and procedures. However, due to the reimbursement structure, doctors may have incentives to recommend more expensive or more aggressive options. This may lead to excessive use of nursing care and increased insurance premiums.

Fourthly, personal behaviour perceptions of risk also play an important role in health insurance market. People tend to underestimate the risk of experiencing health-related events, leading them to underestimate the need for adequate insurance coverage. In addition, high-risk people may over-

insure, buying more insurance than necessary, while those with greater risk tolerance may choose to bear high costs serious illness or injury due to insufficient insurance.

4. Consequences of Asymmetric Information

4.1. Adverse Selection

The consequences of adverse selection are serious. Insurance companies often respond to higher risks by raising the premiums of all policyholders, which may lead to a situation that only those at the highest risk remain insured. This is illustrated through a hypothetical scenario by Chowdhury. He states that people who are at higher risk and more likely to suffer losses have a higher tendency to buy insurance. As premiums increase, the number of people who can afford insurance will continue to decline. Moreover, people who do buy insurance are the most high-risk individuals [3]. This cycle, known as a vicious selection spiral, continues until only the most high-risk individuals remain insured, rendering the market unsustainable. Higher insurance premiums and limited compensation options may limit access to necessary medical services, especially for low-income and sick people. This may exacerbate the health disparities and public health problems, leading to worse health situation because of the limited access to preventive care and early intervention, which potentially increases overall medical costs. On the other hand, with the increase in insurance premiums, healthier people are encouraged to leave the market, further worsening the risk group and increasing the cost. This phenomenon is especially evident in unregulated markets, where the lack of regulatory oversight may exacerbate unfavorable options.

The inefficiencies caused by asymmetric information can lead to suboptimal resource allocation, manifesting as both underinsurance and overinsurance. This may lead to insufficient insurance or excess insurance. Both situations indicate inefficient use of resources, which may not be the best health outcome. Furthermore, persistent problems with asymmetric information may affect trust in the health insurance market. If the policyholder discovers that insurance companies misuse insufficient information, sets unreasonably high insurance premiums, or refuses reasonable claims, they may feel unfairly treated. This loss of trust may break the stability of the insurance market and prevent participation in the insurance program.

4.2. Moral Hazard

Moral hazard poses another critical consequence of asymmetric information in health insurance. If people are shielded from the economic impact of medical choices, they are more likely to pursue unnecessary treatment or services. For instance, patients with full insurance may choose a variety of diagnostic tests, consultations or procedures, which are not medically necessary. This behavior not only increases personal medical expenses but also contributes to the inflation of medical expenses at the systemic level. As insurance claims increase, insurers usually respond by raising the premiums of all policyholders. This creates a self-reinforcing cycle of rising costs that disproportionately affects individuals who utilize healthcare services responsibly. Over time, this dynamic exacerbates systemic inefficiencies and fosters resentment among policyholders.

The results of asymmetric information in the health insurance market extend beyond insurance companies and policyholders. Inefficiency caused by adverse selection and moral hazard will lead to market failure, which may eventually affect the access to medical care. Asymmetric information drives up insurance premiums and creates access barriers to those seeking compensation. Higher costs may prevent healthy people from buying insurance, leading to a concentration of high-risk individuals within the insurance group. This dynamic may lead to a vicious circle, and the increase in insurance premiums will lead to the exclusion of more people from insurance, which will eventually lead to insufficient population insurance. In addition, the impact of asymmetric information extends to the

general medical system. When moral hazard and adverse selection lead to an increase in costs, medical industry may be pressured to raise prices or reduce services and may generate feedback to maintain inefficiency. These market dynamics may hinder efforts to improve health performance and narrow the gap in access to care.

5. Case Studies of Different Countries

The Dutch healthcare system focuses on management care and risk-sharing programs between insurance companies and providers. Managed healthcare organizations negotiate contracts with hospitals and doctors to provide services at specified prices, with the purpose of controlling costs and maintaining quality standards. Regardless of the actual cost, the insurer pays a fixed amount of money per patient annually, along with other risk-sharing mechanisms. By reducing the moral hazard of patients, healthcare providers focus on preventive care and the effective use of resources to encourage better health outcomes.

The United States offers a variety of frameworks for both private and public insurance systems, each facing unique challenges related to asymmetric information. The Affordable Care Act (ACA) expanded eligibility for Medicaid under the federal guidelines of providing affordable health insurance for millions of Americans through state exchange, with the aim of reducing asymmetric information. It also requires a minimum benefit package, that is, all eligible health plans sold in these markets should include basic health benefits to ensure the consistency of the compensation level of various products. In addition, subsidies were provided according to income levels to make insurance premiums more affordable for low- and middle-income families, which has led to an increase in coverage among previously uninsured groups. Despite the political controversy surrounding its implementation, many aspects of ACA, especially about long-term sustainability, still have challenges considering the rise in national medical costs, but it has been proven to be effective in restricting several forms of asymmetric information.

According to a study conducted by Lotfi et al. , in Iran, based on utility parameter estimates of demand for outpatient services, compared to other products and services, families avoid risk by using outpatient care. As a result of estimating the health status of the family according to the type of health insurance, it was found that the health of rural insurers was better, and the health of those who enrolled in supplementary insurance was worse. In addition, the comparison of the conditional distribution of possible health conditions recognised the unfavourable choice phenomenon of all insurance groups except rural insurance. Moreover, the flexibility of medical expenses and the calculation of the repayment rate proved the existence of moral risk phenomena. Because of negative choices and moral risks in most health insurance categories, policymakers must adjust contracts to reduce these phenomena. Considering the importance of funding, the existence of such problems can lead to a reduction in the scope of health insurance provided by insurers, the termination of contracts with medical institutions and service providers, and a deterioration in the quality of medical services [1].

These case studies show that there is no single solution for all situations, but a combination of multi-facet approaches can effectively mitigate the challenges posed by asymmetric information in health insurance .

6. Solutions to Address Asymmetric Information

Dealing with the challenges caused by asymmetric information requires multifaceted approaches that address both the fundamental causes and consequences of this economic phenomenon.

6.1. Government Interventions and Transparency

The government can implement policies requiring people to maintain a minimum health insurance rate, create a larger risk group, and distribute the economic burden to a wider range of people. As stated by Young, low-income individuals have a higher tendency to resort to self-treatment, which accounts for 13% of the total curative expenditure [4]. Risk aggregation helps balance the risks associated with unfavourable options by securing diverse individual participation in the insurance market. In addition, it helps increase the percentage of insured person and reduce the number of insured persons. Without sufficient insurance coverage, people can delay the search of the week until the situation worsens, thus increasing the cost of each person.

Improving the transparency of prices and insurance details enables consumers to make smarter decisions and facilitates competition among insurers, which improves market efficiency. Ross suggested that the introduction of regulations and legislation requiring full disclosure of goods and services sold by sellers is a way for all parties to provide adequate information [5]. By clarifying the scope of coverage, costs, and the available services, it can reduce the asymmetric information between the insurer and the consumer. In addition, disclosure requirements give insurers a more direct understanding of the possible limitations or exclusions of insurance contracts, helping consumers avoid accidents when they need treatment most.

6.2. Technological Solutions

With advanced data analysis and artificial intelligence, insurers can better evaluate risk profiles and customize premiums to reduce the impact of adverse options. In addition, predictive modelling can identify high-risk people early so that specific interventions can effectively manage chronic diseases. Technological advancements also simplify the management process and reduces the indirect costs of insurance companies, which, as a result, leads to lower premiums for consumers. In addition, telemedicine and digital health platforms provide an innovative way to provide more effective treatment for disadvantaged people and provide continuous monitoring for chronic diseases.

6.3. Consumer Education

Mutascu and Sokic suggested that asymmetric information can be indirectly weakened by supporting the educational process [6]. By educating consumers about the importance of health insurance and how to navigate complex environments, they can make better decisions. The education can emphasize the long-term benefits of having adequate insurance, the risks of not taking out insurance, and the availability of subsidies or tax deductions that can make insurance cheaper. By improving consumers' understanding on health insurance issues, these measures aim to reduce confusion and misinformation, ultimately leading to higher enrollment rates and improved outcomes for people and society.

6.4. Public-Private Partnerships

Cooperation between the public and private sectors can facilitate the sharing of non-confidential health data to improve risk assessment and subscription processes while protecting personal privacy. Public-private partnerships can create more effective solutions to asymmetric information problems by utilizing the strengths of each sector. These partnerships help bridge the compensation gap and give all citizens access to basic health care, regardless of socio-economic status.

A strong regulatory framework is essential to ensure fair practices within the health insurance industry. As stated by Cardon and Hendel, inefficiencies in the health insurance market is a major policy issue, as some may not have insurance [7]. Regulatory authorities play an important role in monitoring the behaviour of insurance companies, preventing discriminatory practices against high-

risk people, and implementing community assessment laws that prohibit price discrimination based on health conditions and the application of minimum welfare benefits, including basic medical services. Effective supervision helps maintain trust in the system by making insurance companies responsible for their actions and ensuring transparency and fair operations.

7. Future Trends and Challenges

Looking into the future, some trends and developments will form a pattern of asymmetrical information on health insurance.

One of the most promising ways to solve the problem of asymmetric information is the adoption of advanced technologies, such as artificial intelligence (AI), machine learning, big data analysis and blockchain. AI and machine learning can analyse large amounts of health data to predict risks and reduce the information gap between insurers and policyholders more accurately. Big data analysis also plays an important role in the integration of various data sources, such as wearable devices, and lifestyle factors, establishing a holistic overview of an individual's health status. With this comprehensive approach, insurance companies can better personalise insurance contracts, encourage policyholders to adopt healthier behaviours and reduce moral risks. Blockchain technology provides another innovative solution by ensuring a transparent and safe exchange of health information between stakeholders. Blockchain is able to reduce fraud, increase trust and simplify management processes, ultimately reducing costs and improving the efficiency of the health insurance sector by establishing immutable historic records.

Governments and regulatory authorities around the world are increasingly aware of the need to address the problem of asymmetrical information in health insurance. Future regulations can focus on improving transparency and promoting competition in the market. Mandatory disclosure requirements can be expanded to include details about insurance options, pricing mechanisms and risk factors, which enable consumers to make informed decisions. In addition, cooperation between the public and private sectors plays an important role in the development of standardized data formats and frameworks to promote smooth data sharing between different medical systems. These measures help insurers obtain more complete and accurate information and further reduce the information gap.

As consumer expectations change, the demand for personalized health insurance products is increasing. Insurance companies can respond by providing more customized programs to meet individual health needs and tastes by utilizing the knowledge gained from advanced analysis. This change in personalized insurance helps to coordinate incentives between insurers and policyholders to reduce moral risks.

In a word, through the integration of innovative technology, active regulatory measures, and changes in market practices, the future of asymmetric information in health insurance is extremely promising. These joint efforts can create a fairer, more efficient, and consumer-centred health insurance pattern, ultimately benefiting both insurers and policyholders.

8. Conclusion

In summary, asymmetric information is one of the most important challenges facing the health insurance market today, presenting significant challenges for insurers, policyholders, healthcare providers and regulatory bodies. Adverse selection and moral hazard are two primary consequences of asymmetric information that lead to the increase in insurance premiums, the inefficiency of access to the market, unfavourable choices, and moral risks, emphasising the need for continuous efforts to solve this complex problem. By combining regulatory measures, risk aggregation, technology innovation, and personalised insurance design, people can strive to build a fairer and more efficient health insurance system.

To achieve this goal, cooperation between multiple stakeholders such as the government, insurance companies, health care providers, technology companies, and consumers is required. Joint efforts can bridge the information gap between insurers and insured person, ultimately bringing better health outcomes to everyone who involved in this complex interplay.

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