

# HEALTH ECONOMICS: EPISTEMOLOGICAL ANALYSIS

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**Abstract:** This article aims to conduct a theoretical discussion on Health Economics, addressing its foundations, importance, and applications within the context of public health policies. Using a qualitative and bibliographic approach, the study explores classical and contemporary contributions to the field, highlighting concepts such as scarcity, efficiency, equity, and resource allocation. The analysis shows that health, as a public good and a social right, requires specific economic tools to face its challenges, particularly in public systems like the Brazilian one. Economic evaluation in health is presented as a key tool for efficient resource management, allowing the selection of interventions with the best cost-benefit ratio. However, the article also addresses the limitations and challenges of the field, including the ethical complexity of economic decisions, the lack of qualified data, and the structural inequalities of health systems. Finally, future perspectives in Health Economics are

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discussed, involving the strengthening of value-based analyses, the incorporation of technologies, and the training of qualified professionals. It is concluded that Health Economics significantly contributes to the sustainability of health systems by promoting more rational, fair, and evidence-based decisions.

**Keywords:** health economics; economic evaluation; public policies; efficiency; equity.

## INTRODUCTION

Initially, Health Economics has been consolidating itself as a fundamental field of study in the contemporary scenario, as health systems face increasing challenges related to the scarcity of resources, the increase in population demands, and the complexity of the services offered.

The pursuit of greater efficiency, equity and sustainability in the management of resources destined to health highlights the importance of economic analyses that guide public and private decisions in this sector.

In a global context marked by demographic transformations, such as the aging of the population, and the continuous advancement of medical technologies, it is essential to understand how economic principles apply to the health area and how they can contribute to a more rational allocation of scarce resources.

Health, meanwhile it is a constitutionally provided social right and a desirable good for individual and collective well-being, is also configured as an economic good, whose supply and demand are subject to market laws and political decisions.

However, unlike other sectors of the economy, health has specificities that challenge the traditional logic of markets, such as the presence of externalities, the asymmetry of information between service providers and users, and the uncertainty inherent in the results of treatments.

These characteristics make the health sector one of the most complex from an economic point of view, requiring theoretical and methodological approaches that take into account its singularities.



In this sense, Health Economics seeks to understand how resources are used to promote, maintain, or recover the health of the population, investigating the costs and benefits associated with different interventions, financing models, public policies, and management practices. The problem that arises, therefore, concerns the difficulty in balancing the growing demand for quality health services with the budgetary limits faced by public and private managers.

How to ensure that available resources are used as efficiently as possible, without compromising access and equity? How to evaluate, in economic terms, the impact of new technologies on health? And, above all, how to base health decisions based on evidence that considers not only clinical efficacy, but also economic viability?

Therefore, this article proposes a theoretical discussion on the main foundations of Health Economics, aiming to deepen the understanding of its contributions to facing the challenges that permeate the sector. By exploring central concepts, such as economic rationality, resource allocation, cost-effectiveness assessment and health financing, it is intended to offer subsidies for critical reflection on the possible paths for a more efficient and equitable management of health systems.

## **FUNDAMENTALS OF HEALTH ECONOMICS**

Thus, Health Economics emerges as a specific field of economic science that is dedicated to the analysis of the production, distribution, and consumption of health-related goods and services. Unlike other branches of the economy, this field recognizes health as a particular good, whose nature transcends traditional market logics.

According to Arrow (1963), one of the theoretical precursors of the area, the uncertainty regarding the occurrence of diseases and the effectiveness of treatments compromises the market's ability to efficiently organize the supply and demand of health services, making State intervention essential.

In Pauly's (1968) perspective, the asymmetry of information between service providers and



users compromises the competitive market model idealized by neoclassical economics. In this context, consumers do not have the necessary knowledge to accurately assess the quality and need of health services, delegating important decisions to specialized professionals, which alters the conventional relationship between supply and demand. Thus, the health market has structural flaws that justify the adoption of public policies and regulation.

The foundations of Health Economics were consolidated in the 1960s and 1970s, especially through studies promoted by the British health system (NHS) and the World Health Organization (WHO). According to Culyer and Newhouse (2000), the consolidation of this field was marked by the incorporation of quantitative methods for the evaluation of health interventions, aiming at economic efficiency and maximization of social well-being.

This approach has broadened the scope of economic analysis beyond the simple relationship between costs and benefits, also considering ethical, social and distributive aspects.

For Folland, Goodman and Stano (2017), health should be understood as both a consumer good and an investment good. As a consumer good, it provides direct utility to individuals, allowing them to enjoy well-being and quality of life; As an investment good, health increases productivity and reduces future costs associated with disease.

This duality reinforces the importance of health as an essential input for human and economic development, increasing its relevance in public policy planning.

Grossman (1972) contributed significantly to the understanding of health as human capital. In its theoretical model, individuals accumulate “health stocks” throughout their lives and rationally decide on investments in medical care, food, and physical activity. Health, therefore, is not just a passive outcome, but an active choice that involves intertemporal decisions about consumption and investment. This vision inaugurated a new strand within Health Economics, articulating the concepts of microeconomics to the field of individual and collective health.

Over the years, the development of Health Economics began to incorporate new issues, such as equity in access to services and the sustainability of financing systems. According to Oliveira and



Elias (2012), the concept of equity has become central, especially in developing countries, where social inequalities directly influence health indicators. The economic literature began to include analyses on the distribution of health resources, evaluating the impacts of public policies on vulnerable population groups.

When considering the specificities of the sector, Mendes (2018) highlights that health systems work in a hybrid way, combining market elements with public financing and provision mechanisms. This characteristic makes the sector particularly sensitive to political decisions and the institutional structure of each country. The presence of the State, through subsidies, regulation and direct provision, is justified not only by market failures, but also by principles of social justice and the common good.

Economic analysis in health also incorporates the concept of externalities, as exposed by Drummond et al. (2015). When an individual receives a vaccine, for example, the benefits go beyond the subject directly involved, contributing to collective protection – a positive externality. Such effects are not properly internalized by the market, requiring public policies that encourage socially desirable behaviors. Understanding these dynamics is essential for the design of effective and economically justifiable interventions.

In countries such as Brazil, where the Unified Health System (SUS) plays a central role in the organization of services, the fundamentals of Health Economics are essential for the improvement of public policies. According to Vianna and Silva (2014), the challenge of ensuring universal and equal access to health requires economic evaluation instruments that guide budget choices, especially in a context of chronic scarcity of resources and growing demands. The use of economic analysis, in this scenario, becomes a strategic tool for prioritizing actions with greater social impact.

From the 2000s onwards, the literature began to emphasize the importance of health technologies and the need for systematic evaluations that consider not only their clinical efficacy, but also their economic viability. Health Technology Assessment (HTA), as Santos and Novaes (2021) point out, has become one of the main tools in Health Economics, allowing managers to make more informed decisions about the incorporation of medicines, equipment, and procedures. This movement



reinforces the multidisciplinary nature of the field, which draws on knowledge from epidemiology, statistics, administration, and economics.

In the international context, the incorporation of economic principles into public health management has promoted reforms in health systems. As pointed out by Musgrove (1996), many countries have sought more efficient and sustainable financing models, combining public and private sources of resources, with the aim of expanding coverage and controlling costs.

These reforms reflect a growing concern with the balance between economic efficiency and social justice, central themes for the foundations of Health Economics.

## **ECONOMIC PRINCIPLES APPLIED TO HEALTH**

The application of economic principles to the health sector is essential to understand how resources are allocated, what choices are made by economic agents, and how public policies can influence health outcomes. Scarcity, a central concept of economics, is intensely present in the health area, since the available resources – whether financial, human or material – are limited in the face of potentially infinite needs. In this sense, it is necessary to employ economic tools and principles to define priorities and promote the best use of available resources, as stated by Phelps (2018).

The first principle to be considered is the efficient allocation of resources, which seeks to maximize the benefits generated by a certain amount of inputs. In the context of health, this efficiency is not only measured in monetary terms, but also in relation to the clinical and social outcomes obtained.

According to Drummond et al. (2015), allocative efficiency occurs when resources are directed to interventions that generate the greatest health gain per unit of cost, which requires the application of methods such as cost-effectiveness, cost-utility and cost-benefit analysis.

Another relevant principle is that of opportunity cost, which indicates that, when opting for a certain health intervention, others were no longer implemented with the same resources. As Folland,



Goodman and Stano (2017) point out, each health decision implies renunciations, and understanding the opportunity cost is essential to justify evidence-based public policies.

Thus, a vaccination policy, for example, can be prioritized to the detriment of curative actions, if it demonstrates a greater preventive impact with a lower cost per benefit.

The principle of economic rationality should also be considered, even though, in the field of health, the behavior of agents is often not aligned with the strict rationality postulated by traditional economic theory. Arrow (1963) already warned that uncertainty, the complexity of health services and the asymmetry of information between professionals and patients limit the direct application of the theory of rational choice.

That said, economic models seek to understand how individuals make decisions based on preferences, budget constraints, and outcome expectations, contributing to the planning of more responsive health systems.

The construct of externalities, especially relevant in public health, is also an economic principle applied to the sector. According to Varian (2010), externalities occur when the actions of one agent affect the well-being of others in a way that is not reflected in market prices. In the case of health, vaccines, prevention campaigns, and epidemic control measures generate positive externalities, as they benefit the entire community.

These situations justify state action, as a mechanism to correct market failures and guarantee the collective interest.

Another fundamental principle is equity, which, although not originally an economic concept, has become essential in the evaluation of health policies.

According to Culyer (2001), equity in health refers to justice in the distribution of resources and accessibility to services. Health economics has begun to incorporate this principle, seeking ways to measure and reduce inequalities, which represents an important development of the analysis of social well-being. In Brazil, this perspective is particularly relevant, given the deep regional and social inequalities in access to health services, as discussed by Oliveira and Elias (2012).



The elasticity of demand for health services is another important principle in economic analysis. Folland, Goodman and Stano (2017) explain that, unlike common goods, the demand for health services tends to be inelastic, that is, little sensitive to price variations. This characteristic stems from the essential nature of health services, especially in situations of urgency or severity, which limits the action of price-based market mechanisms.

Consequently, public policies that directly subsidize or offer services become more effective in ensuring universal access.

It is also important to consider the role of competition and monopoly in the provision of healthcare services. According to Porter and Teisberg (2006), the introduction of elements of competition between providers can improve the quality and efficiency of services, as long as it is accompanied by adequate regulation.

However, health has characteristics that favor the formation of natural monopolies – such as in highly complex services or specialized laboratories – requiring State action to prevent abuses and guarantee access.

Health financing represents one of the main challenges in light of economic principles. The theory of the public good, according to Musgrave (1959), helps to explain why the State should assume responsibility for the financing of basic health services, since such services have characteristics of non-exclusion and non-rivalry. This justifies the adoption of universal public systems, such as the SUS in Brazil, which are supported by taxes and solidarity among taxpayers, as advocated by Mendes (2018) and Vianna and Silva (2014).

In addition, the principle of fiscal sustainability is central to economic analyses in health. According to Paim (2013), public systems face increasing pressures resulting from population aging, the incorporation of new technologies and the increased burden of chronic diseases. In this scenario, it is essential to adopt measures that ensure the financial viability of the system without compromising the principles of universality and integrality.



## HEALTH FINANCING MODELS

Health financing is one of the most critical dimensions in public policymaking worldwide, as it involves strategic decisions that directly affect the equity, efficiency, and sustainability of health systems.

The Health Economics literature points to three main financing models: the Beveridgian model, the Bismarckian model, and the market model, each with different structures for financing, provisioning, and regulating health services, and different consequences for users and the system as a whole (Drummond, 2015; Mendes, 2018).

The Beveridgian model, initially implemented in the United Kingdom with the creation of the National Health Service (NHS) in 1948, is based on the idea that health is a right of all and a duty of the State. In this model, health services are financed mostly through general taxes, and the provision occurs, for the most part, by public institutions.

As reported by Culyer and Newhouse (2000), this model promotes universal access to health services based on need, not on the ability to pay, representing a milestone in the consolidation of public and equitable health systems.

According to Musgrove (1996), one of the main characteristics of the Beveridgian model is administrative centralization, which allows greater cost control and standardization of services. However, this structure can generate waiting lines and restrictions on access to more complex or high-tech procedures.

The efficiency of the model strongly depends on the State's ability to manage resources and plan the adequate distribution of services, which does not always occur in an optimal way, especially in contexts of fiscal crisis.

In turn, the Bismarckian model, which originated in Germany in the nineteenth century, is structured based on mandatory contributions to social security funds. In this arrangement, funding is carried out through payroll taxes, paid jointly by employers and employees, and services are provided



by public and private institutions.

As described by Saltman and Figueras (1997), this model combines the universalization of coverage with regulated market mechanisms, allowing some freedom of choice on the part of users and competition between providers.

This financing system, according to Ferreira and Vieira (2008), presents a greater degree of decentralization and participation of civil society, which can favor innovation and responsiveness to local demands. However, the Bismarckian model can accentuate inequalities when there are no robust mechanisms for redistribution between funds, especially in countries with a high level of informality in the labor market, which makes it difficult to collect contributions.

The market model, on the other hand, is characterized by the provision and financing of health services mostly performed by the private sector. In this arrangement, individuals are responsible for purchasing private health insurance or paying directly for the services used. In the United States, as pointed out by Folland, Goodman and Stano (2017), this model predominated until the creation of public programs such as Medicare and Medicaid, aimed at specific populations.

That said, the fragmentation and predominance of private insurance continue to be striking features of the American health system.

According to Arrow (1963), the market model applied to health has serious limitations, such as the asymmetry of information between patients and professionals, uncertainty regarding the results of treatments, and the high costs of services.

These factors compromise consumers' rational decision-making capacity and generate market failures, which justifies government intervention. In addition, the market model tends to exclude significant portions of the population, especially those with low income, accentuating inequalities in access and health outcomes.

Brazil adopts a hybrid financing model, with a predominance of the public sector represented by the Unified Health System (SUS), financed by general taxes and organized in a decentralized manner among the federative entities. According to Mendes (2018), the SUS incorporates principles



of the Beveridgian model, such as universality and comprehensiveness, but coexists with a relevant private sector, which includes private insurance and health plans accessible to a minority of the population. This coexistence creates challenges in terms of equity and efficient allocation of resources.

According to Vianna and Silva (2014), the chronic underfunding of the SUS compromises its ability to provide quality services throughout the national territory, which leads part of the population to resort to supplementary health. Public health financing in Brazil, measured as a proportion of Gross Domestic Product (GDP), is below the average of countries with universal health systems, which aggravates structural and operational bottlenecks.

Constitutional amendments that froze public spending for long periods, such as EC 95/2016, aggravated this situation by imposing limits on the growth of public investments in health.

In contrast, countries such as France and Canada adopt financing models that integrate elements of the Beveridgian and Bismarckian models, but with an emphasis on redistributive public policies. According to WHO (2022), these countries have greater equity and efficiency in their systems, reflecting well-structured, transparent, and sustainable financing models.

The success of these models lies in the ability to secure stable sources of financing and in the judicious use of economic analysis to guide decisions on resource allocation and incorporation of technologies.

Another important aspect in financing models is the role of payments to service providers, which can vary according to the system adopted. As Drummond et al. (2015) point out, payment methods – such as fee-for-service, capitation or fixed salaries – influence the behavior of providers and the results of the system. Poorly calibrated payment models can induce excessive or insufficient service delivery, affecting both costs and quality of care.

The economic evaluation of different financing models is fundamental for the formulation of evidence-based public policies. For Santos and Novaes (2021), the instruments of Health Technology Assessment (HTA) and health economics can and should be used to compare financing models, taking into account not only allocative efficiency, but also distributive justice and fiscal sustainability. The



choice of a model should not be based exclusively on economic aspects, but should also consider the social values and health objectives of society.

## **ECONOMIC EVALUATION IN HEALTH: CHALLENGES AND PERSPECTIVES**

Economic evaluation in health is an essential instrument for rational and well-founded decision-making in contemporary health systems. This is a field that seeks to systematically compare the costs and outcomes of two or more alternative health interventions, in order to support efficient and socially just choices.

According to Drummond et al. (2015), economic evaluation encompasses different methods, such as cost-effectiveness, cost-utility, cost-benefit, and cost-minimization analysis, each of which is appropriate to different clinical, health, or political decision-making contexts.

The need for economic evaluations arises mainly from the scarcity of resources and the growing demand for health technologies and services. As Culyer and Newhouse (2000) point out, no health system, whether public or private, has unlimited resources to cover all possible needs.

In this sense, economic evaluations offer a methodological framework that allows prioritizing interventions with the highest return in terms of health per unit of resource invested. This approach rationalizes the use of public funds and amplifies the positive impact of health policies.

Cost-effectiveness analysis is one of the most widely used, especially in public contexts, as it allows the evaluation of which intervention provides better clinical results at the lowest costs. According to Gold et al. (1996), this analysis is particularly useful in the choice of preventive therapies or programs, where results can be measured in natural units, such as years of life saved or cases avoided. When outcomes are adjusted for quality of life, cost-utility analysis is used, which incorporates indicators such as the QALY (Quality-Adjusted Life Year), enabling comparisons between different types of health interventions.

In turn, the cost-benefit analysis, although more comprehensive, presents greater



methodological complexity. According to Brouwer et al. (2007), this technique requires the monetization of health benefits, which raises ethical and epistemological questions, especially when trying to attribute financial value to human life.

Nevertheless, this approach is useful in contexts where it is necessary to compare investments in health with policies in other areas, such as education or infrastructure, providing an intersectoral view of the economic impacts.

In Brazil, the institutionalization of economic evaluation in health gained strength with the creation of the National Commission for the Incorporation of Technologies in the SUS (CONITEC) in 2011. As highlighted by Caetano et al. (2019), CONITEC's central attribution is the analysis of clinical and economic evidence to support decisions on the incorporation of drugs, equipment, procedures, and clinical protocols. This initiative represents a significant advance in the integration between science, management and public policy, in addition to promoting greater transparency and legitimacy in the choices made by the health system.

However, several challenges still persist in the effective incorporation of economic evaluations in the formulation of public policies. One of the main obstacles is the absence of reliable and standardized data, especially in developing countries. According to Oliveira and Elias (2012), the scarcity of information on direct, indirect and intangible costs makes it difficult to apply economic evaluation models, compromising their external validity. In addition, there are technical and institutional barriers, such as insufficient training of specialized professionals and resistance from segments of industry and the state bureaucracy itself.

Another important challenge is to reconcile efficiency and equity criteria. As Norheim and Asada (2009) observe, an intervention that presents excellent cost-effectiveness may not be equitable from the distributive point of view, as it benefits only populations that are already socioeconomically favored. This tension demands that economic evaluation not be understood as a purely technical instrument, but as part of a broader political and social process, where distributive justice and fundamental rights must be preserved.



In addition to the technical and ethical aspects, there are challenges related to the advancement of health technologies. The emergence of gene therapies, biologic drugs, and high-cost testing has put new pressures on public and private budgets.

As Garau et al. (2020) point out, these technologies offer promising benefits, but they also carry considerable risks, both from a clinical and financial point of view.

In these cases, economic evaluations should be complemented by feasibility studies, budget impact analyses, and periodic performance reviews, which requires greater articulation between science, industry, and government.

With regard to future perspectives, there is a growing appreciation of approaches that integrate health economics with social, environmental and population aspects. The proposal of value-based healthcare, for example, has been gaining prominence on the international scene. According to Porter (2010), this approach proposes that health systems be guided not only by reducing costs, but by maximizing value for the patient, understood as the clinical result obtained in relation to the total cost of treatment.

Such a vision requires user-centered indicators and performance-based payment models, which represents a paradigm shift in health management.

Another relevant trend is the use of big data, artificial intelligence, and predictive models in health economic evaluation. According to Kaplan and Porter (2011), the integration of clinical, administrative, and sociodemographic data will allow for more accurate and personalized analyses, facilitating population management and long-term planning.

This perspective points to a more dynamic health economy, based on real-time evidence and guided by principles of equity and sustainability.

Finally, it is important to highlight the internationalization of economic evaluation practices in health. Organizations such as the WHO, the World Bank, and the OECD have promoted common guidelines and methodological standards, encouraging collaboration between countries and the development of local capacities. For Oortwijn et al. (2021), this normative convergence is essential



to ensure greater consistency, comparability, and quality in studies, strengthening the legitimacy of political decisions and promoting more resilient health systems.

Consequently, it is observed that, as health systems become more complex and pressured by new demands, the role of health economics tends to expand, contributing to more informed, fair, and sustainable decisions.

## **FINAL CONSIDERATIONS**

Health Economics presents itself as an essential interdisciplinary field for the analysis, formulation and evaluation of public policies and clinical decisions. By combining the principles of economics with the specificities of the health sector, this branch of knowledge contributes to the understanding of the mechanisms for allocating scarce resources in an environment characterized by high demand, uncertainty and a strong presence of the State. As seen, the theoretical foundations that support this area range from the behavior of the consumer of health services to the dynamics of institutions and financing systems.

Economic evaluation in health is consolidated as a strategic tool in defining priorities and choosing more efficient and effective interventions. Methods such as cost-effectiveness and cost-utility analysis guide managers and policymakers in making more rational decisions, based on scientific evidence and economic data. However, the effectiveness of these instruments is conditioned by the existence of quality data, technical capacity and articulation between the various actors in the system.

The contemporary challenges of health economics are multiple and include technical, ethical and structural aspects. The incorporation of new technologies, population aging, and the pressure for equity require that health evaluation and management models be constantly reviewed.

In addition, it is essential to integrate social justice criteria into economic analyses, so that decisions not only optimize costs, but also promote inclusion and universal access to care.

Future perspectives point to the growing sophistication of economic analysis, with the



use of digital technologies, artificial intelligence and the integration of large databases. The value-based approach, focused on health outcomes for patients, represents an important evolution in the evaluation and financing model. In this context, the training of trained professionals and institutional strengthening are indispensable for the advancement of this agenda.

In epitome, Health Economics plays a central role in facing the contemporary dilemmas of health systems. By offering analytical tools that articulate efficiency, effectiveness, and equity, this field contributes to more sustainable and socially responsible decisions.

Finally, this requires a continuous effort to update the methodology, invest in data and provide technical training, as well as an ethical commitment to health promotion as a right for all.

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