



Application of the Human Opportunity Index in Evaluating the Effectiveness of the Administration Process and Its Implication on Service Quality in Healthcare Units

Mozart Malik Ibrahim^{1✉}, Ifadhila², Syeh Assery³, Iwan Henri Kusnadi⁴, Ana Faizah⁵

¹Perbanas Institute

²Politeknik Pertanian Negeri Pangkep

³STIE Widya Wiwaha

⁴Universitas Subang

⁵Universitas Batam

mozart.malik60@perbanas.id

Abstract

This research aims to determine the inequality of opportunities in the health sector. Researchers identified three primary sources of information in a database search to construct the organizational health index: the permanent continuous household survey, the quarterly provincial household survey, and the administrative records of the Department of Health Statistics system. The study employed a data matching mechanism to merge the two databases but discovered discrepancies in the live birth and death data, leading to a lack of confidence in the data's quality. The results show that the evolution of health opportunities in the last decade is generally positive, although there are still gaps in access to health insurance and health checks during pregnancy. The study found that the gap was primarily due to socioeconomic differences between individuals. An analysis of changes in the organizational health index in the health sector shows that sectoral policies play a significant role in improving access to health services. This increase in access was primarily achieved by the region's health policies, which ensured proportional increases for all individuals. However, there needs to be a greater focus on equal opportunities for access to health services to ensure that all individuals have equal access to quality health services.

Keywords: Opportunity, Health Service, Health Sector, Health Policies.

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1. Introduction

The evolution of the concept of justice from a focus on equality of outcome to equality of opportunity reflects shifts in thinking in the justice literature. Initially, the main concern was equal outcomes for all individuals, reflecting the principle of reconciliation between freedom and equality [1]. However, as thinking developed, research began to focus on the concept of equality of opportunity, which emphasizes the importance of providing equal access to opportunities for individuals who are in similar groups, regardless of the outcome. The concept of equality of opportunity groups individuals according to similar groups or types and highlights each individual's relative effort in achieving their goals [2]. Thus, equality of opportunity emphasizes that everyone must have equal access to existing opportunities without discrimination based on their background or initial conditions. This shift reflects an evolution in justice thinking, where the focus is not only on fair end outcomes but also on the processes that produce equality of opportunity for all individuals. This shows that justice is about achieving equality of outcomes and ensuring everyone has an equal opportunity to reach their potential without unfair barriers [3].

The testable conditions approach and the notion of conditional equality are two approaches that have significantly contributed to understanding health distribution. Researchers can measure the distribution of health more specifically with the first approach, which focuses on identifying specific health conditions for empirical testing [3]. The second approach, conditional equality, does not determine the number of types arbitrarily but focuses on the equality obtained when certain conditions are met. This approach provides flexibility in measuring equality in a more specific context and is relevant to real-life situations. Both approaches provide valuable insights for more inclusive and equitable health policies [4]. We can design health policies to more effectively address health inequities and guarantee equal access to quality health services by understanding the distribution of health through the lens of testable conditions and conditional equality. Thus, these two approaches can help achieve more equitable and just health goals for all individuals [5].

The approach in developing the Human Opportunities Index (HOI) in 2020 was similar to the previous approach but with a more comprehensive focus and closer to the concept of inequality in access to essential services. HOI is inspired by the function of social welfare and is designed to cover various aspects of life, such as education, health, and other social services, which should be universally accessible to society. One of the advantages of HOI is its ability to measure the availability of essential services needed to achieve progress in life [5]. The index also considers how unequal the distribution of those services is in society, ignoring or "penalizing" such inequality. HOIs accurately depict individuals' opportunities to enhance their well-being and the fair distribution of essential services within society [6]. This approach makes a valuable contribution to understanding unequal access to basic services and helps design more inclusive and equitable policies. By using HOI, governments and health organizations can more effectively assess the distribution of essential services and design programs to reduce access disparities and improve society's overall well-being [7].

If they do not know their position in society, selfish people will choose two principles of justice to form a just society. The first principle is equal freedom, which states that everyone has the same right to the broadest freedoms, including similar freedoms for others [8]. The second principle, the difference principle, posits that we should regulate social and economic inequalities to maximize benefits for the most disadvantaged members of society. Although often misunderstood, the concepts of equality have different meanings and are conceptually very different. Equality refers to uniformity, whereas equality means impartiality or fairness [9]. In any context, ethical justification is required to determine why a distribution is considered unfair. The World Health Organization's concept of justice provides an approach to social justice in the health sector. As previous research suggests, equity in health aims to create equality of opportunity in health and reduce health disparities as small as possible between individuals in society [10].

A substantial body of literature in the field of health economics has attempted to measure and study the distribution of health, mainly with an empirical approach and drawing on the concept of inequality used in the analysis of income inequality. Previous research reviewed this and concluded no explicit agreement exists on the definition and meaning of health disparities [8]. However, there are two conflicting approaches, namely, pure disparities in health and socioeconomic health disparities. The first approach analyzes the distribution of the health variable within a population, while the second approach focuses on the distribution of health between different socioeconomic groups. Various approaches to measuring health inequality, both pure and socioeconomic inequality [9]. They successfully broadened the definition of income inequality, a standard tool in social welfare theory, to encompass the concept of health inequality. However, this approach did not provide a widely accepted definition of health disparities. A new definition of socioeconomic disparities in health includes the distribution of health and the relationship between health and income, consistent with the definition of equity [10]. We can use the first principle to define health disparities, especially after considering that a person's health also depends on their health assets, such as genetics, and how they combine health provision with access to health resources [11].

Despite each individual having unique health abilities, we should view health conditions as equal fundamental freedoms for all. Indeed, each individual has different health capacities, and it is unreasonable to define an ideal society as one in which every individual is genetically identical [10]. Instead, access to health resources should be considered a fundamental freedom, and therefore, access to health should be distributed equally in an ideal society. This approach is similar to the equality of opportunity approach [11]. Individuals may invest more or less effort in seeking well-being, in this case, health, which may lead to an inequality of outcomes that cannot be considered unfair. In a narrow sense, equality of opportunity is achieved when all individuals in a society have the same possibility of gaining benefits through their free choices, regardless of circumstances beyond their control. To achieve this, individuals with similar conditions are grouped into groups and assume that each individual's choices can be represented by their behavior towards other individuals of the same type [12]. The equality of opportunity approach has received attention in economic research and is gaining increasing interest in politics. However, although equality of opportunity has been an implicit concept behind many inequality studies, the number of empirical studies that explicitly apply this concept in health is still limited.

2. Research Methods

In this study, a database search to construct the organizational health index uncovered three primary sources of information: the permanent continuous household survey, the provincial quarterly household survey, and the administrative records of the Department of Health statistics system. However, the data matching process to combine the two databases revealed inconsistencies between live birth and death data. This leads to distrust in the quality of research data. As a result, this study emphasizes the importance of careful data validation and proper care for the data quality used in health analytics to ensure its accuracy and reliability.

3. Results and Discussion

Access to health services has improved, with some approaching or even reaching universality. Almost all women who give birth have a specialist health doctor who can help them, and it is hoped that all these women can give birth in a hospital with the help of a doctor. This shows that access to health services during childbirth has reached a very high level. On the other hand, access to various types of health insurance has also increased significantly each year. Despite this, the organizational health index is still shallow. This demonstrates that individuals persist in utilizing health facilities without private insurance protection. Apart from that, several other health indicators also show positive developments. Although there is no information about its evolution, the minimum access rate to controls during pregnancy is shallow, indicating that governments must make significant efforts to ensure that everyone gets at least five checks during pregnancy. The odds of neonatal survival also increased slightly over the analysis period. Despite the need for further improvements to attain universality, these developments demonstrate the positive outcomes of efforts to enhance neonatal health. Finally, indicators of health services for children under five years of age confirm that this goal has been achieved. This shows that all survey respondents had access to child health services, even when they did not have access to other health services. This is good news and represents significant progress in achieving universality in children's health services.

The IOH is a general measure of coverage of essential human opportunities reduced by penalties when coverage is allocated in such a way as to privilege certain groups of society. This section focuses on accounting for opportunity inequality and describes the groups affected by it. In this case, the IOH methodology employs two tools: the inequality index and the profile of vulnerable groups in opportunities. The Dissimilarity Index indicates the percentage of available services that marginalized groups require reallocation to attain equal opportunities. This index measures the relative degree of opportunity when all circumstances are considered simultaneously. A high dissimilarity index indicates a systematic tendency for certain social groups to have lower chances of accessing the essential services needed for a healthy life. The importance of this index is that the inequalities identified result from conditions that society believes should not allow for interference with access because it would not be morally right. In general, a low IOH is associated with a high dissimilarity index. Only two indicators show a relatively high level of inequality, namely access to health insurance and compliance with at least five controls during pregnancy. The high levels of inequality in pregnancy control are particularly concerning, as they indicate the need to reallocate nearly 42% of available opportunities to vulnerable groups to ensure equal opportunities. However, not having health insurance does not mean being excluded from the system. As mentioned, having insurance can be considered a leap in the quality of healthcare access.

Overall, we can conclude that the distribution of opportunities for the other indicators adheres to the principle of equality of opportunities, potentially due to the approaching universality of these services. However, for two indicators with high inequality, inequality profiles are analyzed based on situation groups. The inequality of opportunities profile provides information about circumstances associated with greater inequality of opportunities. It is based on estimating a particular dissimilarity index that allows only one state to vary at a time. Once we estimate the logit model, we make access probability predictions by allowing only one independent variable to vary while maintaining the mean values for all others. Higher index values are associated with greater access inequality, indicating that people from different categories have very different probabilities of accessing services in these circumstances. Descriptive statistics about the characteristics of children in the top and bottom 8% of the probability distribution can supplement these profiles. The Dissimilarity Index and inequality profiles aim to help understand the barriers to allocating certain services and expanding coverage more equitably.

In the context of access to health insurance and birth control, factors such as location and family structure play an important role in determining access disparities. These findings indicate geographic disparities in access to health insurance, with children from vulnerable groups having a lower chance of living in villages and a higher chance of living in capital cities. This indicates the need for special attention to health access in rural areas, where access to health services may be more limited. In addition, family structure, such as the gender of superiors, also influences access to birth control. The significant decrease in the percentage of birth control in the limited access group suggests that this factor may be an essential barrier to birth control efforts. These results highlight the need for efforts to increase access and equal distribution of health opportunities for all groups in society. This includes paying particular attention to socially and economically vulnerable groups, as well as expanding access to health insurance and birth control services. Therefore, developing policies and programs that consider these factors can help reduce disparities in health access and improve society's overall well-being.

Composition effects result from changes in the distribution of circumstances, mainly reflecting changes in structural demography and general economic development. An example of this effect is when rural families move to cities, causing a change in the geographic distribution of the population. Additionally, decreasing birth rates or gradual increases in socioeconomic status over time, such as parental income or education, can also cause composition effects. Such changes are generally not directly related to current policies in a particular sector but may be influenced by past broader macroeconomic, multi-sectoral, or sectoral policies. In some cases,

policies aimed at reducing the participation of certain groups in society can have negative impacts, at least in the short term. Effective policy instruments are critical to improving the index of organizational health. For instance, reducing the number of children in impoverished households through financial transfer programs or social assistance can be an alternative policy, mainly if malnutrition primarily affects low-income families and is challenging to mitigate. This can help reduce the pressure of malnutrition on vulnerable groups and improve overall IOH.

Coverage effects result from changes in a group's level of coverage and can occur in two ways: scale effects and equity effects. The scale effect is the proportional increase in the average coverage of essential services for all groups of circumstances without taking equality into account. In the scale effect, the inequality of opportunity does not change, and the organizational health index increases only as total coverage increases. On the other hand, the equalization effect occurs when IOH expands through growing coverage for vulnerable groups, offset by decreasing coverage of non-vulnerable groups while keeping the overall level of coverage constant. In the equalization effect, IOH increases as inequality of opportunity decreases. Coverage effects can be decomposed into scale effects and equalization effects. The relative weight of these two effects indicates whether sectoral policies have expanded coverage for all groups or increased equality by expanding coverage that focuses on vulnerable groups. Extreme cases, where opportunities shift from the most advanced groups to vulnerable groups, are rare in the real world. In the context of health access, the decomposition of the coverage effect can only be carried out for indicators estimated based on socioeconomic status, given that there is only one time for the annual measurement of organizational matters. If the government continues to collect health data and modules, this analysis could be expanded to include the variables contained in those modules.

Decomposition between composition and coverage effects. The coverage effect, which is usually related to sectoral policies, has the most significant impact on changes in the organizational health index, except for the indicator of births assisted by doctors in hospitals, where both impacts contribute almost equally. Coverage effects for the other three indicators explain two-thirds or more of the changes, like access to insurance, specialist-assisted births, and neonatal survival. The case of birth weight is entirely irrelevant, considering that the observed change is almost zero. We can better understand how sectoral policies influence improvements in access to services by analyzing changes in coverage for three indicators where coverage effects largely dominate expansion. For the first two indicators, access to health insurance and births attended by specialist doctors, the equalization effect is minimal, meaning that most of the change is due to a proportional increase in access to services across all groups. Although small, this change has a positive impact on equalizing these opportunities.

Analysis of changes in access to neonatal survival shows significant improvements, mainly due to the success of policies that encourage increased access to health services for all groups in society. One important finding is that the equalization effect, reflecting relatively more significant increases in access for vulnerable groups, accounted for 30% of this change. This shows that the policies implemented have succeeded in reducing inequality of opportunity in access to health services, which society considers unfair. Scale effects also play a significant role in improving access to neonatal health services. With increased service coverage for all groups, especially vulnerable groups, this effect also contributes to an overall organizational health index increase. This change reflects the government's commitment to increasing access to health services for all citizens while ensuring equal opportunities are provided to needy groups. Thus, this analysis offers a positive picture of the effectiveness of health policies in increasing access to health services, especially during the neonatal period. However, to ensure continuity and equality of access to health services, it is essential to pay attention to the sustainability of successful policies and strengthen efforts to ensure that all groups in society can access the health services they need.

4. Conclusion

Problems related to the impossibility of combining databases of live birth records and death records represent a severe challenge in health analysis. Although attempts have been made to reconcile the two records using matching techniques, the results are unsatisfactory. To overcome this problem, developing a unique identifier that can link the two records needs further attention. In this way, the government can use available information for better health analysis. The development of this unique identifier will allow the provincial government to combine and analyze data from both information sources more efficiently and accurately. Thus, the resulting information can provide a more comprehensive view of public health and be used to design more effective policies to improve access to and quality health services. In addition, developing this unique identifier can also help improve the quality of data related to live birth records and death records. By having accurate unique identifiers, the government can ensure that the data collected is valid and trustworthy, making the analysis more precise and reliable. Thus, developing unique identifiers is essential in improving the use of available health information for better analysis and policy planning. This can also help governments achieve their goals of improving access to and quality health services for the community.

The results show that the evolution of health opportunities in the last decade is generally positive, although there are still gaps in access to health insurance and health checks during pregnancy. The study found that the gap was primarily due to socioeconomic differences between individuals. Given the country's system of community health centers and significant free services, people with health insurance do not have exclusive access to health resources. However, increased access to insurance in the last decade suggests that insurance ownership may be associated with assets that enable access to higher-quality health resources. Furthermore, it's critical to understand that the chance to undergo a pregnancy check-up at least five times indicates the quality of health services, given its impact on both the mother's and the baby's health. An analysis of changes in the organizational health index in the health sector shows that sectoral policies play a significant role in improving access to health services. This increase in access was primarily achieved by the region's health policies, which ensured proportional increases for all individuals. However, there needs to be a greater focus on equal opportunities for access to health services to ensure that all individuals have equal access to quality health services.

This research shows that governments have the potential to develop effective systems for monitoring access to health resources, utilizing data from administrative records and their surveys. However, the research process revealed several shortcomings that required improvement in this monitoring system. One of the limitations identified was the organizational health index used. This creates challenges for researchers to measure human opportunity holistically. Therefore, future research could try to solve this problem by proposing new indicators that are more suitable for measuring regional human opportunities. In addition, this research also shows the need to exploit other administrative data sources besides Vital Statistics to gain a more comprehensive understanding of access to health services. Enhancing the monitoring of socioeconomic and health indicators is crucial for designing more effective policies that improve the overall welfare of society.

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