Review Article

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COMPARISON OF TURKEY AND LUXEMBOURG IN TERMS OF HEALTH SYSTEMS

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ABSTRACT

Comparative health systems approach refers to a research methodology that aims to reach useful conclusions and analyses by comparing certain facets of the health systems of two or more countries[1]. As in other areas, the exchange of information on health systems between countries has been very intensive. In the late 1980s and early 1990s, under the influence of globalization dynamics and the liberal economic and political policies that emerged as a result of these dynamics, there has been a significant impact on various systems around the world and especially on national health systems, policies and services[2]. This study was conducted with the aim of providing general information about the health systems of Luxembourg and Turkey, comparing the health systems of these countries and determining the differences between their health data.

INTRODUCTION

The structures of healthcare systems of countries, such as how healthcare services are delivered and how healthcare expenditures are financed, are critical factors directly affecting various outcomes in the field of health. In our era, different countries adopt various models of healthcare systems and implement them within their socio-economic and political frameworks. The provision of healthcare services, methods of financing expenditures, and whether they are managed through the public or private sector are examined as fundamental dynamics of each healthcare system. As a result of these factors, significant differences are observed among countries in parameters such as per capita healthcare expenditures, the share of healthcare expenditures in Gross Domestic Product (GDP), the distribution of expenditures between public and private sectors, and the proportion of out-of-pocket healthcare expenditures by citizens. These differences are directly reflected in the health indicators of countrie[3].

Each country's choice regarding healthcare financing is shaped according to its economic situation, social structures, and political preferences. How the burden of financing will be distributed within society varies from country to country. Especially in developed countries, it has been stated that the increase in healthcare expenditures is related more to the quality of demand for healthcare

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services rather than demographic changes such as the increase in the elderly population and the age structure of the society. Economic growth, technological advancements in medicine, and the increasing demand for healthcare services, as well as innovations in healthcare policies (such as changes seen in healthcare systems in the USA and Turkey), can lead to an increase in healthcare expenditures and changes in expenditure dynamic[4].

Controlling the increasing healthcare expenditures is of great importance to ensure fair access to healthcare services for the population, to enhance the quality of healthcare services, and to achieve improvements in health indicators. Therefore, countries continuously review their healthcare systems and strive to manage the delivery and financing of healthcare services more effectively. This process indicates the need for the continuous evaluation and improvement of healthcare policies and practices[5].

This research aims to provide a comprehensive overview of the basic features of the healthcare systems in Turkey and Luxembourg, and how these systems differ from each other. The structural elements of the healthcare model adopted by the examined countries, healthcare expenditures, financing mechanisms, and critical factors such as equity in access to healthcare services are thoroughly examined. The potential effects of these various healthcare systems, in terms of their impact on the delivery and financing of healthcare services, as well as on overall health indicators and citizens' access to healthcare services, are also analyzed from a comparative perspective. Thus, the aim is to develop a deeper understanding of the effectiveness of different healthcare systems in practice and their potential effects on healthcare services.

LUXEMBOURG

General Information

Located in the heart of Western Europe and without a coastline, Luxembourg holds a significant place among Europe's smallest countries. Situated west and north of Belgium, east of Germany, and south of France, this small country, with a population of approximately 600,000, stands out due to its strategic location. Despite its small size, Luxembourg is ethnically diverse and economically highly developed; according to IMF and World Bank statistics, it ranks second in the world in terms of per capita income, following only Qatar.

Luxembourg, with its capital bearing the same name and the only country to have been awarded the title of European Capital of Culture in 1995 and 2007, respectively. Officially known as the Grand Duchy of Luxembourg, this country is the only grand duchy in the world and is governed by a constitutional monarchy. Divided into three by its administrative structure – Diekirch, Grevenmacher, and Luxembourg – Luxembourg, although shaped under the influence of French and German cultures due to its historical and geographical location, has preserved its unique culture and identity. With more than 160 nationalities living in this country, it is known for its multiculturalism, tolerance, and openness. Although Luxembourgish is mostly spoken, French and German are also widely used in state institutions[6].

Luxembourg's population structure is dominated by people of French and German descent, and the low population growth rate has led to a contraction in the labor market. This contraction is compensated for by immigrants and foreign workers from Portugal, Italy, and other Southern European countries. Many immigrants and foreign workers work in mining, steel industry, finance, and international companies in the country. While the majority of the population is Catholic, there are also religious minorities such as Protestants and Jews. A large part of the population lives in the capital Luxembourg and the small towns in the southwest, which is the industrial center of the Grand Duchy.

The village of Schengen, renowned worldwide as the place of signing the Schengen Agreement, is also located in Luxembourg. This small winemaking village opened the doors to unlimited and passport-free travel in Europe on June 14, 1985. Luxembourg is a founding member of important international organizations such as the European Union, NATO, the United Nations, the Benelux Union, and the Western European Union. The historic neighborhoods and walls in the city, protected by being included in the UNESCO World Heritage List in 1994, are preserved. In Luxembourg, especially in the capital, many museums showcase the country's cultural and artistic richness. The National History and Art

Museum, Luxembourg City History Museum, Grand Duke Jean Museum, and Military History Museum in Diekirch are among the country's most important museums. The Luxembourg Ardennes, or the Eisleck region, with its high plateaus and rivers, is one of the country's remarkable natural beauties.

A General Overview of the Healthcare System of Luxembourg

Healthcare services in Luxembourg operate within a framework of a "Welfare-Oriented/Insurance-Based" system. In this system, patients have the freedom to choose their healthcare providers, and there is an obligation for private healthcare workers to adhere to agreements between professional associations and insurance companies. Public health and healthcare services in Luxembourg are regulated by the Ministries of Health and Social Security. The Ministry of Health is responsible for the provision of treatment and prevention-focused healthcare services to the public, while the Ministry of Social Security regulates the basic components of the social security system, such as health insurance and dependency insurance[1].

In 1901, following a similar model implemented by Bismarck in Germany, Luxembourg established a mandatory health insurance system targeting workers in the industry and production sectors. In 1925, a law combining sickness, accident, old age, and disability insurances came into effect as the insurance sector expanded and became more complex[7].

Until the early 20th century, most hospitals in the country were administered by religious organizations. However, increasing costs over time necessitated state intervention in this area. In 1976, a law on hospital planning was enacted to support the state's planning efforts in the hospital sector.

By the 2000s, eight out of ten deaths in Luxembourg were due to non-communicable diseases. Cardiovascular diseases were the leading cause of these deaths, accounting for one-third of all deaths. However, mortality rates due to these diseases have shown a regular decline in recent years and have fallen below the European average[8].

Provision of Healthcare Services

In Luxembourg, healthcare services operate under a system where individuals covered by insurance can freely choose any healthcare provider or institution (such as hospitals or clinics) according to their preferences. This flexibility facilitates access to healthcare services for patients and creates a competitive environment among healthcare providers[1].

Primary healthcare services are generally provided by independent and private general practitioners. These practitioners play a significant role in referring patients to secondary healthcare services, leading to direct competition with specialist physicians. The organization and provision of preventive healthcare services are the responsibility of the Ministry of Health. In addition to services provided by the state, healthcare services offered by private and non-profit organizations are also financed through the ministry's budget. As of 2017, Luxembourg had 10 acute care hospitals with a bed ratio of 4.7 beds per 1,000 people (OECD; 2021).

Except for medical expenses not covered by insurance, hospital visits, inpatient services provided in second-class rooms, and outpatient services are covered by insurance. Patients contribute a co-payment of 8.86% for the services received. While the management structure of hospitals varies by institution, generally, each hospital is governed by a board of directors, and annual budgets are determined through negotiations with the Association of Sickness Funds[8].

The financing of healthcare services in Luxembourg is based on a model that combines mandatory social insurance with complementary and voluntary health insurance. This system relies on mandatory social insurance, which forms the legal framework of the insurance system, aiming to ensure fair and comprehensive access to healthcare services[8].

Health Financing and Expenditures

Similar to its neighbors Belgium, France, and Germany, Luxembourg provides access to healthcare services through a social health insurance system. In this system, approximately half of the costs of long-term care services

are covered by the state, while the remaining portion is supported by taxes paid by workers and contributions from electricity-generating companies. The majority of insurance revenues are collected through contributions from insured individuals, while the remaining portion is supplemented by the state budget[9].

In Luxembourg, healthcare services are financed through a triple insurance system consisting of mandatory, complementary, and voluntary insurance. According to this system, all regular workers, regardless of income or profession, are covered, including those paying for unemployment insurance and even students not covered by insurance. Additionally, minors and disabled individuals can benefit from this insurance, and the state assumes insurance payments for those in need[8].

Residents of Luxembourg who are not covered by insurance can obtain access to healthcare services by purchasing voluntary insurance after a certain period. Individuals over the age of 18 and no longer dependent on their families can apply within six months to continue benefiting from the healthcare services offered by insurance. Voluntary insurance covers services not covered by public insurance, but it offers lower reimbursement rates and provides fewer services. Nevertheless, a large portion of workers take advantage of the benefits of voluntary insurance[1].

Health Reforms

Health reforms carried out in Luxembourg during the 1980s and 1990s primarily focused on ensuring the financial stability of sickness funds. Significant developments during this period included increasing contributions to healthcare services, establishing the Union of Sickness Funds to balance budgets, and transferring the responsibilities of various sickness funds to this union.

In 1995, significant changes were made to the payment structure due to rising hospital costs, initiating a process where hospital budgets were determined through negotiations between the Union of Sickness Funds and hospitals[1].

In 1998, a law was enacted formally recognizing patients' basic rights. These rights include:

- Information: Patients have the right to be informed about their health conditions and appropriate treatment methods, although they also have the right to refuse to be informed.
- Informed Consent: Any diagnostic or treatment procedure cannot be performed without the informed consent of the patient. Patients have the right to refuse proposed diagnoses or treatments.
- Examination of Medical Records: Patients have the right to access their medical records, although they do not have access to personal notes kept by healthcare professionals.
- Confidentiality: Healthcare professionals are obligated to maintain the confidentiality of patient files and should not share this information with third parties.

These regulations were enacted to safeguard patients' rights and improve the quality of healthcare services.

TURKEY

General Information

The Republic of Turkey, the country that bears its name, is located on the Anatolian Peninsula for the majority of its territory, with a small part in Thrace, an extension of the Balkan Peninsula. Turkey's population is around 82 million and its total area is 814,600 square kilometers, ranking 36th among the world's countries. Surrounded by seas on three sides, this unique geography consists of two important peninsulas divided into two by the Bosporus and Dardanelles straits. These two strategic waterways physically separate the continents of Asia and Europe, separating Anatolia from Thrace. This geographical location makes Turkey a natural bridge and an important geostrategic power, as well as a country noted for its rich historical and cultural heritage.

Turkey is a constitutional republic based on democratic principles, with a secular structure and a unitary state organization, and its administration is based on a presidential system. Its official language is Turkish, the mother tongue of the majority of the population. The Turkish ethnic group constitutes 70-80% of the population,

while minorities recognized under the Treaty of Lausanne and other unrecognized ethnic groups enrich the country's cultural diversity. In terms of religious belief, the majority follow Sunni Islam[10].

Turkey is a member of many important international organizations, including the Council of Europe, NATO, OECD, OSCE and G-20. It became an associate member of the European Economic Community in 1963, joined the EU Customs Union in 1995 and started negotiations for full membership with the European Union in 2005. It also actively participates in regional and cultural organizations such as the Organization of Turkic States, the International Organization of Turkic Culture, the Organization of Islamic Cooperation and the Organization for Economic Cooperation. Turkey is recognized as a regional power with its military capacity and diplomatic activities, and is a geopolitical actor of global importance with its strategic location at the crossroads of Europe and Asia.

A General Overview of the Healthcare System of Turkey

The Turkish Health System is divided into three main periods.

- **Post-Republican Period (1920-1960):**

The foundations of the Ministry of Health of the Republic of Turkey were laid in 1920. In the first years of its establishment, the Ministry focused on rebuilding the health infrastructure of the country emerging from the war and developing the basic laws that would form the health system. As Turkey's first Minister of Health, Dr. Refik Saydam took important steps to strengthen the infrastructure of health services for 14 years. He opened public hospitals, maternity and child care centers in Ankara, Erzurum, Diyarbakır, Sivas and many other cities. Attaching great importance to the training of health personnel, Saydam established health education courses and dormitories for medical students, launched the Institute and School of Public Health in 1928, and opened dispensaries in Istanbul and Ankara to combat tuberculosis[11].

Between 1923 and 1946, the cornerstones of Turkey's current public health system were laid. During this period, many laws were passed that clearly defined the responsibilities and duties of the Ministry of Health. Preventive health programs, especially for the control of infectious diseases such as tuberculosis, malaria and leprosy, came to the fore. The organization of health services showed a vertical structuring in this period[11].

Between 1946 and 1960, Turkey entered a period in which health centers were established to provide integrated health services. At the same time, all hospitals were taken from local governments and placed under the control of the Ministry of Health. In 1946, the Social Insurance Institution (SSK) was established to provide health insurance services for workers in the private sector and blue-collar workers in the public sector. This period was an important turning point in strengthening Turkey's healthcare infrastructure and improving public health[12].

- **Socialization Period (1961-1980)**

In 1961, Law No. 224, which would fundamentally transform Turkey's healthcare infrastructure, was enacted. This legal regulation laid the groundwork for an inclusive and national healthcare system in the country. The law emphasized the importance of providing healthcare services impartially, continuously, and in response to the needs of the people, thereby giving momentum to the establishment of an Integrated Healthcare Services System. The main goal was to provide either completely free or partially free healthcare services to all citizens. The financing of these services was provided through insurance payments and allocations from the state budget. Especially, the development of the necessary infrastructure for preventive healthcare and environmental health services, as well as the spread of health education throughout the country, was targeted. However, the investments required for this expansion could not be fully realized. Due to the significant portion of resources allocated to personnel expenses, the necessary infrastructure, medical equipment, and other needs could not be adequately met[13].

In 1963, for the first time in Turkey, the five-year development plan included the health sector. The aim of this plan was to prioritize preventive healthcare services, provide general healthcare services through the Ministry of Health, distribute healthcare personnel fairly across the country, improve public health services, promote the national pharmaceutical industry, support the

opening of private hospitals, implement General Health Insurance, and establish the revolving capital system in state hospitals. This plan is recorded in history as one of Turkey's significant steps in the healthcare sector[11].

- **Neoliberal Reforms Period (1980+)**

Between 1980 and 2002, significant constitutional rights regarding access to social insurance and healthcare services were granted in Turkey. The 1982 Constitution recognized social security as a right for every citizen and stated that the state must provide social insurance opportunities to its citizens. Additionally, provisions regarding the organization of healthcare services and the implementation of General Health Insurance (GSS) were included in this constitution. Between 1986 and 1989, the government passed laws, including the Basic Healthcare Services Law and the initiation of health insurance through Bağ-Kur. These laws aimed to address the shortcomings in the Integrated Healthcare Services System established in 1960. However, the Basic Law could not create a comprehensive healthcare policy or introduce legal regulations to support systemic reforms[14].

As of 2003, public healthcare financing in Turkey was based on a social security system established in 1946, which showed significant developments in the following decades. In 1992, the government initiated the Green Card program, aiming to provide healthcare services to financially disadvantaged citizens. This program was considered a temporary solution until the full implementation of GSS. Applications for the Green Card were evaluated by commissions at the district level.

By 2003, approximately 85% of the population had some form of health insurance coverage, while the remaining 15% lacked access to health insurance. However, preventive and primary healthcare services provided through the Ministry of Health network were indirectly financed. SSK (Social Insurance Institution), Bağ-Kur (Social Security Organization for Artisans and the Self-Employed), and Emekli Sandığı (Retirement Fund) were the institutions with the largest share in insurance coverage, while the coverage of private insurances was quite limited. However, there were issues with insurance coverage data for this period, such as multiple insurances by different social security institutions, deficiencies in the registration system, and uncertainties regarding the number of individuals responsible for insuring others. There are significant differences in health insurance coverage rates between SPO data and surveys conducted by the Ministry of Health and TurkStat, revealing uncertainties and gaps in official data[15].

Recent Health Reforms in Turkey

In Turkey, the provision of health services by the state became a constitutional obligation with the Law No. 224 adopted in 1961, which stipulated the socialization of health services. However, with the 1982 Constitution, health services were no longer directly provided by the state, but were limited to the state's duty to plan and regulate health institutions. Throughout the 1980s and 1990s, reforms were introduced to promote liberalization in the financing and delivery of health services. These reforms included measures such as financing health services through insurance premiums and contributions instead of taxes, privatization of health institutions and the introduction of performance-based payment systems[11].

Launched in 2003, the Health Transformation Program (HTP) introduced a comprehensive approach to the health system. The SDP includes important changes such as centralization of health financing, implementation of the family medicine system, semi-autonomous structure of public hospitals and performance-based remuneration of health workers. In addition, the number of subcontracted workers in the health sector was increased and the focus was on issues such as quality and accreditation to improve the quality of health services[16].

Among the main objectives of the SDP were the role of the Ministry of Health as a planner and regulator, the inclusion of all citizens under the General Health Insurance (GSS), the provision of accessible and effective healthcare services, and the enhancement of quality and efficiency in healthcare services. This transformation process included significant steps such as transitioning from health centers to the family medicine system, establishing healthcare enterprises, and consolidating social security institutions under a single roof. With the implementation of the Family Medicine Pilot Application Law and other legal regulations in 2004, the healthcare system in Turkey aims to be more efficient, accessible, and sustainable[1].

Financing Health Expenditures in Turkey

While the delivery of health services in Turkey is carried out by various organizations in both the private and public sectors, access to health services is differentiated between individuals with and without insurance coverage. Insured individuals receive services under different health regimes. The country's health services are financed by the central government's general budget revenues, i.e. taxes, compulsory insurance premiums and direct payments by individuals for services. Some insured individuals receive health care through systems such as SSK, Bağ-Kur or private insurance, with premiums paid by employees and employers, while others, such as pensioners and active public servants, are covered by the state. Individuals who are not covered by insurance pay directly for health services, but those who cannot afford to pay are covered by various state funds. Insured people who are linked to these funds have to pay a certain portion of the health services they consume, such as medicines, eyeglasses, dental services, etc., as a consumer contribution. This diversity makes Turkey's health financing system quite complex[11].

Health expenditures are financed by various institutions and organizations and a unified organizational structure has not been established throughout the country (Tokat 1993:12). In the current system, the Ministry of Health, the Ministry of National Defense, universities, autonomous and special budget institutions, municipalities and social security institutions such as SSK, Bağ-Kur and Emekli Sandığı provide health services. In addition to these, foundations, foreign and minority communities and the private sector are also part of health services (Yıldırım, 2000).

Table 1. *Comparison of Health Data between Luxembourg and Turkey*

Indicator	Luxembourg	Turkey
Total Population	600,000	82,000,000
Population Growth Rate	Decreased by 3%	Increased by 1.5%
Population Over 65 Years Old (%)	14.08	8.5
Number of Hospitals	10	1510
Hospital Beds per Capita	4.7	2.5
Total Fertility Rate (%)	1.47	2.07
Life Expectancy at Birth	82.29 (Male=80.1, Female=84.6)	78 (Male=75.3, Female=80.8)
Maternal Mortality Rate (per 100,000)	10	16 (2006: 28.5)
Under-5 Mortality Rate (per 1,000)	10	16
Vaccination (%)	99	98
DTaP Vaccination (%)	99	97
DTaP 3 and BCG Vaccination		DTaP3=96, BCG=93
HBV 3 Vaccination (%)		96
Measles Vaccination (%)	99	98
Hib 3 Vaccination (%)	38	7
GDP (Billion $)	62.404	851.102
GDP per Capita ($)	111,710	27,000
Physicians per 1,000 People	2.92	1.8
Nurses per 1,000 People	11.7	1.9
Healthcare Expenditure	Total: $6,475, State: $5,286, Private: $1,188	Total: $1,194, State: $938, Private: $260
Smoking Prevalence (%)	14.9	27.3
Tuberculosis Incidence (per 100,000)	5.8	18
Adolescent Fertility Rate (2016)	5.44	26.93 (1986: 74.65)

Source: *https://data.oecd.org/luxembourg.htm (Accessed on 16.04.2021)*

Conflict of interest statement

The authors declare that they have no conflicts of interests.

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