



# Article Sustainable Rural Healthcare Entrepreneurship: A Case Study of Serbia

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Abstract: This article deals with the under-researched phenomenon of rural health entrepreneurship and its major characteristics. The purpose of this study is to explicate the process of providing health services in rural areas of a developing country and their relation to SDGs. The paper is based on six semi-structured interviews conducted with Serbian health entrepreneurs in rural areas (two private practices, two policlinics, and two dental practices), a review of laws and strategies relevant to the field, and three sessions of discussions with eight experts (four authors and four additional experts). The research methodology follows an empirical, mixed-method case study research procedure. The results are presented in relation to the aspects of frugality, family orientation, and sustainabilityoriented innovation. The timeline of the six case studies demonstrates the increasing importance of health entrepreneurs in rural areas. The financing instruments have also become more formal and substantial in recent years, enabling the growth of healthcare businesses in rural areas. However, a major obstacle to further sustainable development remains the non-refundability of services before the state-owned, obligatory health fund, creating major social inequalities, especially in rural areas.



Citation: Paunović, I.; Apostolopoulos, S.; Miljković, I.B.; Stojanović, M. Sustainable Rural Healthcare Entrepreneurship: A Case Study of Serbia. *Sustainability* **2024**, *16*, 1143. https://doi.org/10.3390/ su16031143

Received: 20 November 2023 Revised: 22 January 2024 Accepted: 25 January 2024 Published: 29 January 2024



**Copyright:** © 2024 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (https:// creativecommons.org/licenses/by/ 4.0/). **Keywords:** health management; rural entrepreneurship; health policy; family business; frugal innovation; sustainability and innovation; sustainability-oriented innovation; case study methodology; sustainable business models; COVID-19 pandemic

## 1. Introduction

The calls for sustainability transitions have grown stronger in recent years; that said, several links are missing between the conceptual and practical sustainability models, global and local action, and the various academic communities and practical research case studies. There is a general gap in the current literature in the field of sustainability-oriented innovation to present contemporary practice in this field [1]. While the topic of sustainability innovation deals with the efficiency of business operations and social and environmental goals, sustainability entrepreneurship needs to integrate sustainable company performance on the economic market with the benefits for society and the environment [2]. However, in the case of clearly defined traditional entrepreneurial core business, venturing out into the uncharted territories of sustainability innovation needs to be better understood from a theoretical and practical point of view: under what conditions can sustainability-oriented business model innovation translate into business model migration [3]?

One of the most researched topics in healthcare management for sustainability is sustainable change in healthcare services [4,5]. While this research field deals to a great

extent with the diffusion of innovations [6,7], quality of care [8], and evidence-based practices [9], there is a large research gap in relation to healthcare entrepreneurship and how it contributes to sustainability and sustainable change for the healthcare system as well as for the community in question. The present article aims to fill this gap by providing evidence on the links between rural health entrepreneurship and sustainability. In addition, there is a lack of coordination between health promotion strategies and sustainable development strategies [10], which is why it is necessary to understand the conditions under which rural healthcare entrepreneurs engage with sustainability, the ways in which they do, and how the sustainability and health outcomes are influenced at the grassroots level.

The previous literature acknowledges that the connections between health promotion and sustainable development are numerous, but they have previously been inadequately integrated at local, regional, and global levels [10]. There is also rarely any notion of innovating for sustainability in healthcare. Sustainable innovation and entrepreneurship have been identified in the previous literature as the prime vehicles for addressing structural challenges that health systems face, specifically those pertaining to rising healthcare costs, demands for higher quality healthcare, and decreasing accessibility of healthcare services [11]. In this sense, the future of healthcare depends on the adoption and use of innovative solutions by medical workers [12]. However, previous studies also identified that private healthcare institutions can vary significantly from each other in terms of sustainability orientation, regardless of their apparently equal legal status [13]. Healthcare and medical science are, after all, sectors that are traditionally often reluctant toward innovation and entrepreneurship [14]. The current state of the literature on sustainability-oriented entrepreneurship and innovation in healthcare is still in its early stages. This is why it is of the utmost importance to research privately owned healthcare providers and their attitudes toward financing, implementing, and sustaining sustainability innovation. Why is sustainability innovation particularly important in healthcare? Healthcare has been identified as the major emitter of environmental pollutants that adversely affect health, while the awareness of these effects among healthcare workers is very low [15]. In addition to this, compliance with the UN Sustainable Development Goals needs to be ensured in terms of ensuring universal access to health (which is also connected to cost and quality) to promote wellbeing; addressing global health threats (disasters, humanitarian crises, conflicts, extremism, and terrorism); maternal, newborn, and child health; environmentally sound healthcare waste management; and the protection of labor rights [16].

In Serbia, healthcare entrepreneurial activity has an important administrative and social aspect, contributing to the overall decentralization of the healthcare system [17]. Health entrepreneurship also represents a chance for the employment of young doctors and specialists in Serbia and is an important economic tool for stopping the trend of mass migration of medical personnel, which has been present for a long time [18]. However, health entrepreneurship in developing countries often receives a certain amount of stigma because it provokes moral anxiety and panic regarding having to charge for the health service provided and is therefore often labeled poverty capitalism [19,20]. This brings us to the issue of frugality both in terms of frugal entrepreneurship and frugal innovation. Frugal entrepreneurship has also been called grassroots entrepreneurship, where every community, regardless of income or development level, has an innate capability for innovating and finding effective solutions to everyday problems [21,22]. One of the major controversies of frugal innovation related to sustainability is the identification of conditions in which frugal innovations lead to sustainable development outcomes, with collaboration being one of the most prominent facilitators [23]. Family relationships also play an important role in frugal innovation but are poorly understood [20]. Family aspects of service-oriented ventures and companies also represent a major research gap in the recent entrepreneurial literature [24]. The presented case studies from health entrepreneurship aim at closing these research gaps in the frugal entrepreneurship and family business literature.

The aim of this paper is to examine private medical practices in rural areas and its contribution to the sustainability of rural communities with a particular emphasis on the

context of rural communities in a developing country. This goal should help close the gap in the current literature on sustainability-oriented innovation in general [1], as well as closing the gap in the literature on sustainability-oriented entrepreneurship and innovation in healthcare [10].

This paper begins with a presentation of the literature on sustainability, innovation and rural health, health entrepreneurship in rural areas, frugal entrepreneurship, and family entrepreneurship. It then presents the methodology and results. The results begin with the context of the case study in terms of the specificities of the Serbian health system and then continue to present the case data in relation to the six interviews as primary data and other collected secondary data. After that, the discussion and conclusions are presented. Finally, three appendices related to laws and regulations and one appendix related to the interview protocol (semi-structured research questions) are presented.

#### 2. Literature Review

#### 2.1. Sustainability Innovation in Rural Health

Sustainability-oriented innovation can be defined as an intentional change in organizational values and/or philosophy, practices, and processes, as well as products and/or services [1]. Both sustainability-oriented innovation and sustainability entrepreneurship should be treated in parallel to understand the field of change for sustainability: sustainable entrepreneurship can be defined as the realization of sustainability innovations in the mainstream market to provide benefits to society and capture value in return [2,3]. Previous literature recognizes the important role that organizational innovation plays in improving the quality and curbing the raising costs of healthcare services and especially the challenges related to sustaining grassroots innovation starting from the frontline clinicians themselves [25]. The Bayh–Dole Act of 1980 helped introduce the concept of "entrepreneurial university" in favor of the previously dominant "professor's privilege", giving the universities patent rights over research projects financed by the federal government [26,27], a concept often sought to be replicated in Europe [28,29]. This concept still significantly influences medical innovation, especially through innovation-driven medical specialization, where resources are concentrated in academic teaching centers [5]. Having this research framework in mind, sustainability innovation in rural healthcare is an interdisciplinary research field and finds itself at the intersection of literature on entrepreneurship, innovation management, sustainability goals (environmental, social, and economic), and rural development.

It is often the case that new medical technologies challenge the sustainability of national healthcare systems [5]; some sources even claim that the R&D ecosystem that creates innovation threatens the sustainability of health systems worldwide [30]. This naturally leads to the question of the role of frugal innovation in health, which could possibly provide better healthcare to more people at a lower cost [31].

Public-private partnership, also called public-private engagement, has been identified in the literature as an important tool for governments to utilize private resources in furthering public healthcare goals and stimulating innovation through a variety of forms and models [32]. In order to counter the downsides of the PPP model in healthcare, social sustainability has been identified to be one of the major goals for the assessment of publicprivate partnerships as it contributes to explicating the link between healthcare, well-being, and quality of life for both staff and patients, as well as other stakeholders [33]. However, until recently, social sustainability has been completely absent from the healthcare literature [34]. Rural health enterprises can provide ample evidence regarding the social sustainability of rural communities. Rural health enterprises have been demonstrated to have a significant impact on regional growth in terms of generating employment, providing health services, and supporting the social fabric of the rural communities, thereby contributing threefold to the sustainability of rural communities [35–37]. In addition, rural health professionals are well placed to influence both health and social outcomes, thereby encouraging community resilience and sustainability [38]. Furthermore, there is an undeniable link between health, the environment, and overall sustainability, which is why health institutions are often regarded with great pride as symbols of identity and sustainability [39,40]. The case of Horizon's medical services in rural India demonstrates a social entrepreneurship approach rather than a for-profit one, in terms of affordable fees below the market rate, as well as health service provision even for those not able to afford it [20].

While managerial aspects of health service provision have been the focus of the recent literature in Serbia [41], the focus was mainly on improving the service quality, while not taking into account the costs and accessibility of health services and completely neglecting the specificities of the rural areas. Major health and sustainability problems in modern society share root causes, such as the overexploitation of carbon storage (coal, oil, etc.), biodiversity (hunting and fishing), and soil overuse (for agriculture), which is why health innovation and sustainability innovation need to be well integrated to reduce the unintended consequences of giving precedence to either health or sustainability [10].

#### 2.2. Health Entrepreneurship in Rural Areas

The realization of any entrepreneurial initiative, including those in the field of health services, involves the investment of financial resources, the acquisition of the most modern medical technology and apparatuses, the employment of experts from various fields, and the continuous monitoring of innovations in healthcare [42]. In this sense, the private healthcare systems in the developed and third-world developing countries differ significantly, while those in the developing "second world" have been completely neglected. Due to extensive privatization of healthcare activities, starting in the 1980s, U.S. medicine transitioned to an entrepreneurial and corporate-dominated model of healthcare, wherein physicians and other healthcare professionals combine their roles as care providers with becoming entrepreneurs and managers [43]. On the other hand, the example of India demonstrates that health innovation and entrepreneurship are manly focused on the tertiary sector, which utilizes frugal technologies and low-cost business models [44]. In low-and middle-income countries, the private sector plays a significant role in healthcare financing and provision, including the prominent role of international donors, non-governmental organizations, for-profit providers, and similar groups [32].

Public–private partnerships are a very important form of investing in capital infrastructure projects, including social and health services and involving a very diverse set of cooperation agreements, starting from restructuring the public sector and contracts on service provision to leasing and concessions, as well as joint ventures and privatization [45]. The challenges that are shared in both the state-owned, state-controlled, and private healthcare institutions necessitate a balance to be struck between costs, quality, and access to healthcare services [43]. In addition to the aforementioned aspects, rural health entrepreneurship entails often-unrecognized dimensions in terms of a lack of training in medical schools, commitment to the community, and very often even outright social entrepreneurship, as well as business administration and general entrepreneurial skills [38].

### 2.3. Frugal Entrepreneurship

Frugal entrepreneurs are resource-scarce entrepreneurs who craft solutions that are environmentally friendly, have low ownership costs, and use locally available materials [21]. In this sense, one of the major sources of frugality in rural healthcare is the inability to invest in advanced technologies and thereby provide upgraded health services: those parts of the health system that invest are the ones able to generate job growth and secure health service accessibility [46]. One of the prime examples of disruptive frugal innovation is healthcare in developing countries such as India, where certain hospital chains have managed to offer extremely low-cost healthcare services through process and business model innovation [44].

Frugal entrepreneurship has been researched predominantly in the bottom-of-pyramid context, most often in India [47] and, more specifically, the Indian health system, which

5 of 27

consists of about 65% out-of-pocket payments [48,49]. However, less is known about the process in middle- and high-income countries [50]. This is an especially relevant research gap in rural areas of middle-income countries, where rural areas have a rather poor level of development, significantly under the average level calculated on the level of the whole country. Frugal innovation and entrepreneurship deal with resource mobilization in resource-constrained environments and should therefore result in extremely low-cost products or services that are fit for purpose and are thus especially well-suited for bottom-of-pyramid markets in developing countries [50,51]. Keeping in mind the exploding costs of healthcare in middle-income and developed countries, this could be a suitable approach in healthcare to reduce costs while retaining a certain level of quality. The frugal entrepreneurship approach for frugal innovation consists of four elements, known as the four As: affordability, acceptability, awareness and availability [52].

#### 2.4. Family Entrepreneurship

There is a gap in the previous entrepreneurship literature on analytically linking the family aspects to innovation, entrepreneurship, and social wealth creation, which constitutes a very significant research gap given the enormous influence that the family exerts on the entrepreneurial experience in its various forms [53,54]. The research landscape is moving in the direction of a more balanced acknowledgment of the important role of family in the entrepreneurial process, thereby not necessarily differentiating between family firms and non-family firms [55]. Family aspects are considered to be an important part of the local embeddedness of a firm as well as in the pursuit of non-economic goals (resource building in a community for long-term competitive advantage) through business, besides the economic ones [56]. However, one major challenge to precisely defining the role of family in entrepreneurship could be the fact that besides the classical definition of a family (two biological parents and their children, possibly also grandparents), modern scholars have identified a multitude of features of a family, none of them being conclusive, thereby making a single definition of a family fluid [57]. Therefore, more recent research has coined the term "entrepreneurial family" to depict a group of family members who work together to grow family wealth [58,59].

Family-owned health start-ups more often turn to local sources of capital, such as family, local foundations, banks, or private investors, who provide grants or loans [14]. In this sense, previous literature has identified three major aspects of family entrepreneurship: family, individual, and family business [60]. Previous research into rural entrepreneurship in a developing country, Kenya, has identified three types of entrepreneurship overall: familyfrugal (with a focus on family stability), individual-market (easy access to market and services), and family-inwards (isolated farms with subsistence farming) [61]. The familyfrugal and family-inwards types of rural entrepreneurship are two types of family farming entrepreneurship, which is one of the most stable and uniform types of entrepreneurship. Both the family-frugal and individual-market types of entrepreneurship are relevant for rural health entrepreneurship in Serbia.

#### 3. Methodology

This research follows an explorative, qualitative case study approach. It does so first by presenting the context of the case as well as the case analysis by presenting the six private practices based on the research case study approach as defined by the previous methodological literature [62,63]. The paper is based on six semi-structured interviews as primary data. The interviews were conducted with Serbian health entrepreneurs in rural areas (two private practices, two policlinics, and two dental practices) in December 2022 and January 2023. The interviews represent a balanced sample of private medical practices, larger policlinics, and dentist practices for the different types of organizations and specialties to be represented. Additionally, the sample contains entrepreneurs who started their rural entrepreneurial journey in each of the last three decades in which private practices were once again legally allowed in modern Serbia. In this way, the sample, although relatively small, represents a well-balanced selection of enterprises in terms of their size, specialties, and entrepreneurial tenure. In relation to the sample size, previous case study literature agrees that a case study should involve no fewer than 5–6 instances (in this case, interviews) [64,65].

Before the interviews, data from 10 websites (6 of the private institutions and 4 of the health entrepreneurship financing institutions), 14 laws, and 7 other documents (2 strategies, 4 rulebooks, and 1 map of national strategic framework) were consulted and classified according to relevance, as presented in the Table 1 below. After conducting the 6 interviews, 3 meetings with 4 additional experts (in addition to the four authors) were conducted to discuss the data and guide the analysis and case presentation.

Source of Evidence	Primary/Secondary Source	Number and Description
Interviews	Primary	6 interviews with 2 private medical practices, 2 policlinics, and 2 with dental practices
Expert workshops	Secondary	3 workshops with 4 health experts together with the 4 authors
Laws	Secondary	14 laws
Other documents	Secondary	2 strategies, 4 rulebooks, 1 map of national strategic framework
Websites	Secondary	6 websites of the private practices interviewed

Table 1. Five sources of evidence for the case study.

The research methodology follows an empirical, mixed-methods case study approach to critically analyze the data and identify the most relevant themes that characterize private rural health institutions in Serbia. It therefore presents six instances of private medical practices/health entrepreneurs from rural areas to build a research case that can inform academia, policy, and practice on the crossroads of health, entrepreneurship, sustainability, and innovation. This approach should foster an abductive approach to understanding rural health entrepreneurship in a developing country by facilitating deductive, inductive, and comparative thinking in a critical, creative, and meaningful way.

After conducting the interviews, the analysis included 4 additional health and health entrepreneurship experts in order to discuss the interview findings and minimize methodological risk related to the conversational nature of open-ended interviews. In addition, websites detailing private practices, relevant laws, and other documents were included in the discussion, with the goal of triangulating from multiple sources of evidence. The triangulation should result in the convergence of evidence from different data sources and different interviewers. The triangulation helps in enhancing the construct validity of the case study [62].

#### 4. Results

#### 4.1. Serbian Health System: A Context for the Case of Rural Health Entrepreneurship

Serbia is a developing country [66] with a very high human development index (although it is the second last country in this category) [67]; it is thus comparable, according to these two parameters, to Albania, Bulgaria, Georgia, Panama, and Thailand. The private medical industry in Serbia is worth around EUR 2 billion, with 4500 private health institutions, employing around 10,000 medical doctors and deploying around 800 ultrasound devices, over 100 scanners, and 1000 hospital beds [68].

Serbian private health institutions have experienced high growth of over 50% in the past decade, mostly focusing on specialized and diagnostic services as well as laboratories [69]. This growth was mostly spurred by the availability of a young and trained workforce. During the seven-year-long (2014 to 2021) moratorium on new employment in the public sectors, including state-owned hospitals, no new medical doctors could be employed, and even after 2021, employing new staff continues to be a very cumbersome administrative procedure, entailing case-by-case approval by the government commission [70]. Keeping this in mind, as well as the scale of health emergencies in a post-pandemic period

in Serbia with one of the oldest populations in Europe, the trend of growth in private medical practices in Serbia is likely to continue.

In 2011, a law on PPP and concessions was passed; in practice, the results were mixed: one major infrastructural road development project was cancelled while several local road development, telecommunication infrastructure and waste management, wastewater treatment, and public transportation projects have been implemented [45]. The investment potential of Serbia, as a low-income country, depends on the ability to leverage the PPPs, as there is no capacity on the part of the government to independently finance and operate large and expensive projects needed to attract investors, increase employment, and provide a better quality of life [71]. As for the legal regulation, as part of the process of approaching the European Union, Serbia accepts and applies the laws and other acts that exist in the countries of the European Union (Law on Healthcare), while in the implementation of the concept of this type of service entrepreneurship, it relies on the experiences of neighboring countries, that is, the former transition countries of Central and Eastern Europe [72]. The relevant legal framework is presented in Appendix A, while available financing instruments are presented in Appendix B.

There are opposing views in the literature on what model the healthcare financing system in Serbia historically followed, but none are substantiated in terms of each model's characteristics and which ones were actually implemented in Serbia. While some claim that the Serbian healthcare financing model is a post-Semashko model [73], others claim that it is actually both a post-Semashko and a Bismarck model [74]. The Serbian health system is the only one among its neighboring countries where mandatory health insurance does not cooperate with private medical practices [69], at least not in any significant way. Starting with the notion that there are certain elements from different classical and well researched health systems in the literature, we present in the Table 2 below the major characteristics of the health system development in Serbia.

**Table 2.** Overview of the Serbian healthcare financing and organization before and after 1990, the year in which private medical practice was introduced again.

Serbian Healthca	are before 1990	Serbian Healt	hcare after 1990
Dedicated healthcare contribution and fund for employees and their families, since 1962 in different forms and names, and from 1972 onwards called "Government self-managing interest community for healthcare" as well as communal "self-governing health communities" [75]	A Bismarckian health system characteristic	Dedicated healthcare contribution and fund for employees and their families, called in different periods also "Institution of the republic for health insurance", presently "Fund of the republic for health insurance" [75]	A Bismarckian health system characteristic
Government financing from the budget [76]	A Beveridge health system characteristic	Government financing from the budget [76]	A Beveridge health system characteristic
General ban on private practices from 1958, although older practices were allowed to continue [76]	A Semashko health system characteristic	Out-of-pocket and private health insurance for private practice, rare contracts with state health fund	A post-Semashko health system characteristic as determined in the literature [74].

In Appendices A–C, the relevant legal and financial framework for health entrepreneurship is summarized and presented. In Appendix A, the eight most important laws and four rulebooks related to rural health entrepreneurship are presented. It includes the laws related to health, personal data processing, labor, business, and entrepreneurship. In Appendix B, the four most important institutions are presented (Fund for the Development of the Republic of Serbia, National Employment Service, Bank Loans, EU projects and funds) as well as the according possibilities for financing health practices. In Appendix C, the two strategies, one map of the national strategic framework, and six laws related to sustainable development and/or SDGs are presented, and their link to rural health entrepreneurship is explained. This is important for understanding the context of the case and helps explain certain codes and themes that show up in the interviews and in the case analysis in the next chapter.

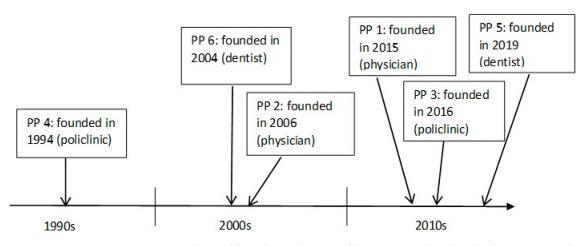
#### 4.2. Case Analysis: Rural Health Entrepreneurs in Serbia

Entrepreneurial initiatives in the field of providing health services in Serbia started in the 1990s but gained full momentum in the 2000s and later. The opening of private clinics, polyclinics, and specialist services in rural areas is a process with measurable positive effects. Some of them are the relief of the state health system in terms of the number of patients who can now exercise the right to healthcare in their own place; the reduction in public expenditure in the field of providing health services; the engagement of doctors and consultants from state clinics, which enables the availability of health services in the same scope and quality, as is the case in city health centers; and so on. However, the development of entrepreneurial initiatives in the field of providing health services is accompanied by a number of problems, especially when it comes to rural areas. These problems are most often related to the lack of support from the state for the development of this type of entrepreneurship, and hard-to-find sources of financing, whether domestic or European funds. A special problem is the non-recognition of the importance of the development of medical entrepreneurship by the banking sector, that is, the lack of favorable bank loans specifically intended for the development of this type of business. The basic information on the six exemplary private practices presented in this case study are presented in the Table 3 below.

Private Practice No. (PP No.)	Health Service Provider Type	Description of Services Offered	Year Founded
PP 1	Physician	Neurological practice with part-time specialists of all profiles	2015
PP 2	Physician	Pediatric practice	2006
PP 3	Policlinic	Internal medicine, gynecology, ophthalmology, biochemistry, surgery, anesthesia	2016
PP 4	Policlinic	Surgery, radiology, cardiology, other part-time specialists	1994
PP 5	Dentist	Dental services	2019
PP 6	Dentist	Dental services	1994

Table 3. Basic information about the medical practices examined in this study.

In the 1990s, the first wave of health entrepreneurship pioneers started their operations during the civil wars, where state-owned hospitals lacked basic materials due to warinduced sanctions. This situation led some doctors to seek better working conditions in the private sector. The second wave started in the 2000s, when financing the new venture was very difficult, but the ever-worse working conditions due to overworking led some MDs to start their own businesses. The third wave of entrepreneurs started in the 2010s, when some kind of investment support was possible for employing doctors as well as for equipment; note, however, that this is a very administratively challenging task. The development of entrepreneurship was spurred by the increasing development of the legal infrastructure, which gained momentum in terms of the breadth of regulation as well as the frequency of changes in the last decade. The timeline of the private practice foundation in the six researched private practices is presented in the Figure 1 below.



**Figure 1.** Timeline of foundational years of the six researched medical practices in the rural areas in Serbia.

For further information on the legal framework, please see Appendix A. In addition to the laws and regulations presented in Appendix A (the most important being Healthcare Law, Labor Law, and the Law on Business Companies), there are other laws that can in some way affect the work of private practice: the Law on Obligations, the Law on Safety and Health at Work, the Law on Trade (for pharmacies), the Law on Health Insurance, the Law on Value Added Tax, the Consumer Protection Act, and others. However, these laws are only partially relevant to rural health entrepreneurship in Serbia.

Sustainability-oriented innovation by health entrepreneurs in Serbia is a very prominent theme, even if the term itself is not necessarily interpreted by all health entrepreneurs as directly relevant to their practice. The full results are presented in the Table 4 below. However, the aspects related to health in the UN Sustainable Development Goals were relevant for almost all of the interview partners (private practices—PP), with the exception of PP 6, who refuted any connection of his practice to ensuring universal access to health, addressing global health threats, maternal, newborn and child health, and environmentally sound healthcare waste management. Only in the area of labor rights did PP 6 agree that it is an important aspect of the long-term sustainability of the health system and society. As for the other PPs, they are cooperating with gynecologists to support young mothers through so-called "baby clubs" and cooperating with labor unions to ensure that whole families have access to healthcare (PP 1). Others provide innovative telemedicine offers through a telephone for childcare, as well as using a 3D printed visor for pandemic protection (PP 2). A significant amount of pro bono work is involved, which goes unnoticed but is necessary due to the limited out-of-pocket payment capacity of the rural population (PP 5). Furthermore, in cooperation with humanitarian organizations, crowdfunding campaigns are being organized to finance expensive operations in foreign clinics as well as with local religious communities and with UN agencies (PP 4). One of the main motivations for all rural health entrepreneurs is to increase the accessibility to health services in rural areas (PP 1, 3, 4, and 5).

The results related to frugal entrepreneurship in doctor's practices are presented in the Table 5 below. Frugal entrepreneurship in doctors' practices in Serbia is related to the issues of the dependence on the part-time workforce, while there was a ban on part-time work during the pandemic, which meant that the practice had to close for two months (PP 1). Also, bank loans from the local banks are insufficient for long-term investments in equipment, which is a big obstacle for small rural health entrepreneurs (PP 2). Presently available financing instruments for health entrepreneurs in Serbia are listed in Appendix B. There is also a lack of institutional cooperation between the state-owned health institutions, but the connections depend on professional networks only (PP 1). Small practices have no administrative capacity to deal with the EU calls and tenders (PP 2). Doctors who treated COVID-19 patients themselves throughout the pandemic had no priority vaccination like other health workers in the publicly owned health centers (PP 2).

The results related to frugal entrepreneurship in policlinics and dental practices are presented in the Table 6 below. The aspects of frugality in health entrepreneurship in policlinics and dental offices are diverse and range from difficulty in finding skilled health workers in the rural area (PP 3) to a lack of basic infrastructure like stable electricity and Internet connection (PP 4), and to a lack of investment capital and high administrative barriers of securing and administering the capital (PP 4, 5, 6) to the point that some even land the seed capital from loan sharks (PP 6). However, the period that PP 6 is referring to goes back to the early 2000s, while the current financing options are listed in Appendix B of this paper. Other relevant frugality aspects of starting a rural health business are the dependency on part-time MDs who come from larger urban centers (PP 4), considerable amount of forced pro bono work due to the inability of local inhabitants to pay fully for the services (PP 3, 4, and 5) as well as there being no possibility to obtain a contract with the state health fund (mention by all of the PPs). Only PP 4 had a contract for 10% reimbursement from the health state fund for a very short period of time, but this was soon abandoned by the fund. There are also some specific issues in certain regions, such as the inability of the banking system to incorporate Islamic banking in order to facilitate investments in health facilities (PP 3).

Table 4. Sustainability-oriented innovation in doctor's practices, policlinics, and dental practices.

Private Practice No.	Sustainability-Oriented Innovation Codes
PP 1	<ul> <li>Improved access to specialized health professionals located in urban centers in a rural region, especially during the COVID-19 pandemic lockdown. Belgrade is not so far away but the travel costs and time are important factors to consider.</li> <li>The creation of baby clubs through gynecology in order to support young mothers.</li> <li>Cooperation with labor unions who cover the costs for whole families, so the health services are available to large parts of the community.</li> <li>Large corporations also have their own health insurance for their own workers, who can use our services.</li> <li>Since the rural region is mostly populated by elderly people, the goal is to create an offer for patronage and care for the elderly.</li> </ul>
PP 2	<ul> <li>Providing examination of children immediately, with no waiting lists, and advice via telephone as a telemedicine service, which is not available in the state health sector.</li> <li>One of the very few practices that has the right to write prescriptions through the state health fund; this was a huge administrative hurdle.</li> <li>During the COVID-19 pandemic, there were very long working hours due to demand, beyond regular working hours for employed doctors.</li> <li>Cooperation with a start-up regarding deploying a 3D-printed visor for pandemic protection.</li> <li>Cooperation with numerous private insurance companies for company employees.</li> </ul>
PP 3	<ul> <li>Ensuring better access to specialists in large urban centers by providing the initial check-up, but this specialist can also pull strings for the patient in these large clinics to ensure the right and timely treatment.</li> <li>Specialists who come to work part-time usually also visit their own family in the region, so they have both a professional and private motivation to come over.</li> </ul>

## Table 4. Cont.

Private Practice No.	Sustainability-Oriented Innovation Codes	
PP 4	<ul> <li>Improved health service in a rural region both by bringing part-time specialists from urban centers as well as by providing modern and appealing premises.</li> <li>Cooperation with humanitarian organizations and non-profits to crowdfund, through public actions, liver transplantation abroad for a patient.</li> <li>Cooperation with the Islamic community; cooperation with UNICEF regarding developmentally disabled children.</li> </ul>	
	Relieving the overburdened state sector of its long waiting lists.	
PP 5	<ul> <li>Investment into previously unavailable dental equipment in the rural region and consequentl offering innovative health service in the sense that it is complete, thereby saving the customer time and money by not having to travel to the nearest urban center.</li> <li>There is a plan to work with developmentally disabled children one day a week as pro bono work together with colleagues who work part-time in the office.</li> <li>A very important component of the offering is a preventive program regarding child teeth</li> </ul>	
	<ul> <li>A very important component of the oriening is a preventive program regarding crinic teen health, brushing teeth and hygiene habits, as well as mothers' oral health during pregnancy, when babies should start chewing, etc.</li> </ul>	
PP 6	<ul> <li>Generating employment in a rural region by employing health workers as well as own childre who are doctors and cannot be employed in the state-owned health institutions due to an absolute ban on employing new doctors.</li> </ul>	

Results in relation to family entrepreneurship are presented in the Table 7 below. Family entrepreneurship in the six private practices plays out in different ways but is a very prominent aspect of the functioning of these medical practices. Whether it is inherited within a family (PP 4), started inside a family house (PP 1), or run by a husband and a wife (PP 1 and 6), the family aspect is an unavoidable part of rural entrepreneurship. It is often so that the concepts of "functioning and building trust inside of a family" are then often extended to the relationships with non-family employees (PP 6) as well as the contributions to the wider community (PP 3).

The aggregate theoretical dimensions induced from the first-order codes and second-order themes are sustainability-oriented innovation, frugal entrepreneurship, and family business.

Sustainability-oriented innovation is related to the second-order themes of rural medical practices being alternative medical services in the rural setting and engaging with a wide range of stakeholders to bring innovative and ethical services to the rural community. Private medical practices in rural regions are helping to reduce the pressure on the state hospitals, which, for a long time, could not hire new employees due to a general employment ban. In addition to that, the specialists who come to the rural areas as part-time doctors also represent a link for patients from the rural areas who need to be treated in the large hospitals in urban centers. Rural health entrepreneurs were also involved in the COVID-19 pandemic as important contributors to the health and sustainability of local rural communities. Health entrepreneurs are very keen to engage with other entrepreneurs and innovators not only when it comes to putting to use new healthcare technology but also when it comes to engaging with the most vulnerable groups in the community.

Private Practice No.	Frugal Entrepreneurship Codes
PP 1	<ul> <li>Due to administrative reasons, lots of duties are being credited to the town, while no resources are being allocated to our little village, which is in the vicinity. Property tax is also being calculated according to the urban zoning but we are actually in the countryside.</li> <li>The practice is legally registered to a retired doctor as the husband can only be employed on a part-time basis because he is working in a state-run hospital.</li> <li>The practice is located in the family house, so no rent is due.</li> <li>There is no institutional cooperation with state-owned health institutions, so professional networks (from congresses, seminars) play a key role in directing the patients into tertiary institutions, especially, e.g., in emergency conditions, like pre-heart-attack.</li> <li>For the out-of-pocket payers, not all the costs are collectible, but one knows already who in the community can pay and who cannot, so it becomes pro bono work.</li> <li>No investment capital available, neither through a favorable loan from some state institution nor through a bank, where the possibilities are really limited.</li> <li>During the COVID-19 pandemic, for some time, part-time doctors were not allowed to work in private practices, so the practice was closed for 2 months.</li> </ul>
PP 2	<ul> <li>The tax statement came in before the first patients could even be treated, which was a big burden</li> <li>There are not enough administrative resources and capacity to deal with the whole EU funds industry, where one needs to pay for information and for consultants, participating in tenders.</li> <li>Unfavorable bank loans in terms of insufficient volume (up to EUR 4.000) for equipment financing, while no other loans or leasing options are available, although the practice has been in operation for 16 years.</li> <li>There was no COVID-19 vaccination priority for doctors in private practices, although they themselves dealt with COVID-19 patients during the pandemic. However, the association of private health practices complained and sent their technicians to administer the vaccine to doctors in private health institutions.</li> <li>There were problems with ordering masks, as customs thought they were for private consumption because the address is private and would not allow them to pass; they even charged the VAT, although it should be exempted.</li> <li>Free vaccines were administered only in state-owned institutions, while in private practices, they needed to be bought.</li> </ul>

**Table 5.** Frugal entrepreneurship in doctor's practices.

Private Practice No.	Frugal Entrepreneurship Codes
	• It is difficult to find doctors in rural areas; they need to come from large urban centers like Belgrade. Usually, doctors with a specialization are keen to form teams and work.
	• It is not possible to obtain contracts with the state health fund as only very specific services, e.g health tourism, cataract operations, and hyperbaric chambers, receive this type of arrangemen This is unlike neighboring countries such as Bosnia, Kosovo, and Montenegro.
PP 3	• Not charging examinations to poor patients in the community, as self-initiated pro bono work The social goals come before the economic ones.
	• The investment capital for starting a policlinic was made through Islamic banking, but the problem is and was that a lot of these procedures are not recognized by a national bank (equa installments, property owned by the lender until full repayment), so we had to adapt.
	• There is no need for general practitioners in policlinics as they are already readily available in the public sector, and they also only increase the costs of specialist treatments.

Table 6. Frugal entrepreneurship in policlinics and dental practices.

Table 6. Cont.

Private Practice No.	Frugal Entrepreneurship Codes		
PP 4	<ul> <li>Most of the doctors work on a part-time basis; only the radiologist works full time.</li> <li>There was one battlefield-related injury from the war where no costs could be reimbursed; this situation is the same for some other patients, where their treatment is pro bono work.</li> <li>There is a 20% discount for doctors. There was a contract for co-financing of services (some 10%) by the state health fund, but this was abandoned as the law never passed the procedure in the parliament.</li> <li>Inpatient care was changed to outpatient treatment with diagnostics and minor surgical interventions, as it is otherwise too expensive for our patients, who are mostly paying out of pocket.</li> <li>The Internet goes out as soon as it rains. The electricity goes out every hour, which is bad for the medical devices and for some an alternative power supply needs to be installed, but only for a limited number of lights and devices.</li> <li>Servicing the equipment is very expensive as the location is very remote, and the serviceman charges per day and needs to travel a lot.</li> <li>Investment capital is a big problem, with lending, mortgages, and repaying for only EUR 5.000, but a loan from a development fund was recently applied for. However, there has been no public financial support for more than two decades in operation.</li> <li>The most important way to get the word out about the services is to hire famous doctors as part-time consultants.</li> <li>It is important to be able to pay the salaries and invest because the social goal is stronger than the financial motive.</li> </ul>		
PP 5	<ul> <li>Support for medical devices is much more expensive in remote areas than in urban areas.</li> <li>Some patients are not charged due to their circumstances; their treatment is carried out pro bono. There is no written procedure as to how to deal with charging the patients; it is on a case-to-case basis.</li> <li>It is very hard for a dental doctor to keep up with all the administration needed for investment in a private medical practice, but considerable administrative support is needed for bookkeeping in order to apply to tenders for government programs, etc.</li> <li>There is obsolete regulation for starting the practice, where investment is needed in the equipment not used in dental practices anymore.</li> </ul>		
PP 6	<ul> <li>Some lobbying was carried out on the level of the provincial government to push for the possibility of having contracts with the public health fund, but it was not successful.</li> <li>When working with the companies, they usually pay in six to eight installments, which does not pay off as specialists need to be routinely paid a specified amount every month.</li> <li>Investment capital for starting up was secured through loan sharks as no other option was available from the state or from private investors or banks.</li> </ul>		

 Table 7. Family entrepreneurship.

Private Practice No.	Family Entrepreneurship Codes
PP 1	• Husband and wife running a business, with the husband working part-time and wife working in administration. The husband is the only neurologist in the rural area.
	• The practice is in a family house.
PP 2	• The brother provided all of the seed money needed to start the private practice.

Table 7. Cont.	. Cont.	7.	Table
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Private Practice No.	Family Entrepreneurship Codes	
PP 3	<ul> <li>The founder comes from a string of health entrepreneurs as both their mother and father have their own private medical practices nearby.</li> <li>Philanthropic activities of an organization inside the Islamic community are related to showing merit or mercy, as a way of thanking God for the health of one's own family.</li> </ul>	
PP 4	<ul> <li>The father, who changed from a construction business in the 1980s to a health business in the 1990s, built and equipped the hospital; one of their daughters took it over and is very active in adapting to the market changes all the time.</li> <li>Very stressful running a policlinic/hospital as a family, which is also taking its toll on the health of family members as the responsibility is high, retaining 13 employees with high salaries for such a rural region.</li> </ul>	
PP 5	<ul> <li>The wife is a dentist who got married and moved to the rural region, while the husband runs the administration side of the business, preparing documentation for obtaining start-up support.</li> <li>It is very difficult for women entrepreneurs to handle all the activities, in this case with two children being born after the practice started its operation.</li> <li>Female entrepreneurs and their families are disadvantaged compared to both employees and male entrepreneurs: they have less maternity leave for their third child; maternal leave cannot start before childbirth but only on the day of childbirth, the husband of a female entrepreneur mother cannot take maternity leave, unlike the husband of an employed mother.</li> </ul>	
PP 6	<ul> <li>A wife and husband, as well as their son, are full-time doctors in the practice.</li> <li>Both the salary and the overall profit are very important motivations in order to be able to take care of the family—children as well as partner. Only after that comes philanthropic activities.</li> <li>Employees who are not part of the family also become part of the family as a special kind of trust is being built, as if all employees are a family.</li> </ul>	

The frugal entrepreneurship aspects relate both to institutionally induced frugality as well as to geographically and community-induced frugality. Institutionally induced frugality relates to uncoordinated public health activities, where MDs working in private practices have no vaccination priority although dealing with COVID-19 patients themselves. Moreover, there is no dedicated seed capital for health entrepreneurs and no cooperation with the state health fund. Community-induced frugality relates to the fact that out-ofpocket payments in the rural community are sometimes uncollectable as some members of the community simply cannot afford treatment; uniform pricing is also not always practiced, but the price is instead negotiated on a case-by-case basis. The administrative capacity to deal with the paperwork needed to obtain external financing is very low, representing a big obstacle to starting one's own business. Geographically induced frugality relates to the fact that the maintenance of expensive equipment is more expensive than in urban centers due to the remoteness and frequent power outages, which negatively affect the sophisticated equipment. Regarding employment, the number of individuals involved in the work process on a part-time basis is much higher than the number of permanent employees; that is, those who work full-time in state institutions and, if necessary, up to the legal maximum of 30% are engaged in private practices. This model has the advantage that doctors and consultants of certain specialties, by occasionally engaging in health centers in rural areas, become available to the local population and, at the same time, relieve the waiting lists at state clinics where they are permanently employed.

Family entrepreneurship themes relate to family employment and family commitment to advancing the rural community through investment. Family employment is an important motivator for starting a health business in a situation where young members of the family in the medical profession have no possibility to attain employment in state-owned hospitals. Administrative and support functions are also exclusively being performed by members of the family, while there is less professionalization of health management as a profession. There is very often a family connection between the doctors in the practice, especially the ones employed full-time, while other medical staff are more often external to the family. A combination of one partner being a doctor and the other an administrator of the business is also common. Family usually provides the initial capital to start up, and the focus of the social contribution activities is also often put on families in the local community.

### 5. Discussion and Future Research Direction

Transitions toward sustainable healthcare require innovations, which are provided by healthcare entrepreneurs, and it is therefore of great importance to understand their underlying arguments as a starting point for creating healthcare policy for sustainability transitions [11]. Healthcare entrepreneurship can be found in most countries of the world, regardless of the health system type or development trajectory. The Semashko model bans private practices altogether [74], the Beveridge model allows private practices while differentiating between public and private practices [77], and the post-Semashko model allows private practices primarily for out-of-pocket payments and less often for private insurance, while the public health fund does not have contracts with the private sector [74]. The Bismarckian model in Germany does not differentiate between public and private healthcare providers in terms of contract for service provision, a novelty introduced back in 1913, while from 1993 onwards, patients have also been free to choose their obligatory health fund, as all are private and heavily regulated [78]. In this context, the results of the study confirmed the previous findings that health entrepreneurs do not simply strive for maximum profit [11]; in most cases, they strive for community sustainability goals in the rural context, with some exceptions. However, the results of the study also confirm that there are significant differences in terms of sustainability orientation as, in one private practice out of six, there was a very strong denial of goals outside of profit orientation. This is in line with the findings of Rodriguez [13] that there are significant differences between the private health institutions regarding sustainability orientation and values, but also general findings that managerial values for sustainability can vary across different social and geographic contexts for the same type of organization [79,80]. Rural health enterprises have been demonstrated to have a significant impact on regional growth in terms of generating employment, providing health services, and supporting the social fabric of the rural communities, thereby contributing threefold to the sustainability of rural communities [35-37].

#### 5.1. Theoretical Implications

The results of this study confirm that private healthcare institutions start with their own intrinsic values in planning for sustainability-oriented initiatives, as previously demonstrated in the case of Spanish private hospitals [13]. These results emphasize the importance of adult and student entrepreneurship education in terms of both profit-oriented entrepreneurship and social entrepreneurship: sustainability-oriented innovation and norms apparently come from the socially and psychologically internalized values of health entrepreneurs themselves.

Although previous research deals with the frugality of small firms with limited resources to serve underserved customers in low-income countries [47], we apply the concept of frugality to small firms with limited resources who serve underserved customers in a middle-income developing country. The results of the study demonstrate that this is a promising avenue for research. The research uncovered numerous facets necessitating frugality in health entrepreneurship in a middle-income country, such as no seed money being available for equipment and very expensive maintenance due to remoteness and power outages, exclusively out-of-pocket payments meaning that the services are often provided pro bono to poor members of a community, and there being no vaccination priority for medical doctors working with infected patients during a pandemic. In addition, the research confirmed the findings from the previous literature that rural health enterprises impact positively on regional growth in terms of generating employment, providing health services, and supporting the social aspects of the rural communities, thereby contributing threefold to the sustainability of rural communities [35]. The results of the present study expand the previous findings that medical innovation challenges the sustainability of the healthcare system [5,30]. Our findings demonstrate that the healthcare entrepreneurs and doctors in private policlinics themselves are the link between innovation and sustainability in rural areas as they make sure that the costs are fair and equitable according to the patients standing in the community as well as that the right public/private therapy combination is deployed so that the best outcome in terms of cost and quality is achieved for the patient. In this regard, the results also confirm previous findings in the literature that rural health entrepreneurs are as much for-profit entrepreneurs as they are social entrepreneurs [20,38]. Our findings confirm that they need to juggle both profit and social goals for patient health outcomes and the sustainability of the rural community.

Previous research into rural entrepreneurship has identified family-frugal (with a focus on family stability), individual-market (easy access to market and services), and family-inwards (isolated farms with subsistence farming) as three relevant types of entrepreneurship [61]. The results of the present study demonstrate that both the family-frugal and individual-market types of entrepreneurship are relevant for rural health entrepreneurship in Serbia, while family-inwards is not relevant due to its isolation and the focus on purely agricultural subsistence production. Our results represent one of the first studies to link entrepreneurship, innovation, and social wealth creation to family aspects of entrepreneurship. Recent studies in the literature acknowledge that family plays an important role in the entrepreneurial process [55], but there are still major gaps in this literature. The family aspects of the entrepreneurial process were a theme that emerged during the research and represented an important and strong aspect for rural health entrepreneurs.

#### 5.2. Managerial and Political Implications

Having in mind a lack of coordination between health promotion strategies and sustainable development strategies [10], it was necessary to provide ample evidence on how rural entrepreneurs navigate the health–sustainability nexus. The results of the study indicate that they cooperate with the government and international organizations and NGOs at all levels whenever the opportunity arises, which means that there should be more targeted programs for supporting and engaging health entrepreneurs as important sustainability facilitators at the local level. Their role and commitment to their rural community in most private practices extend far beyond the legal requirements for business and ethical requirements for a doctor's license.

The option of national fund coverage has been discussed extensively by entrepreneurs, as this option exists in many neighboring countries and all of the EU countries. However, this option needs to be carefully planned if it is to be implemented because of two major issues arising from this potential change. Firstly, there must be a financing mechanism available to ensure short- and midterm liquidity of the health entrepreneurs, which are waiting for a reclaim from a fund. This would be a new problem that does not exist in the current out-of-pocket payments. This has already been identified as a potential threat to the sustainability of private medical practices in Greece [81]. Secondly, state-owned health service providers need to be supported through targeted projects to become more competitive in the market and able to bill services to out-of-pocket patients. This would be a so-called "public entrepreneurship" or public innovation stimulus [82]. Another major issue of relevance for the functioning of the whole system is the question of whether mandatory healthcare insurance can also be provided by private corporations, which can introduce modern methods of actuarial science to financing healthcare and presenting a major innovation engine for the whole health system. One of the major identified deficiencies of the Semashko system is the long-term underfunding, lower accessibility of healthcare services, and inability to hire the required doctors available on the market [70,73,76], largely due to health fund creation operating with a net loss and not being able to finance the increasing health needs of the aging population [83]. Having in mind that the Serbian system possesses some of the Semashko characteristics of centralizing the financing and controlling the health system, opening up a compulsory health insurance market could

provide a major impetus for adopting appropriate financing mechanisms and consequently innovating the healthcare both in terms of therapy options as well as its efficiency.

#### 5.3. Limitations and Future Research Directions

The research methodology in the present study is case study research. The generalizability of findings is one of the major weaknesses of this research methodology [84]. Moreover, our case contains the number of instances that are on the lower limit of recommended instances inside a case study—we conducted interviews with six private medical practices/entrepreneurs. Previous case study literature agrees that a case study should involve no fewer than five to six instances (in this case, interviews) [64,65].

Future research regarding frugality should attempt to unify different insights from low- and middle-income countries into a unified theory that can be applied in different contexts. Generally, more research is needed from different countries with different health systems in order to enable the comparability of rural health entrepreneurship in terms of frugality, family entrepreneurship, and sustainability-oriented innovation. Another important aspect of this comparative research should be the pandemic preparedness and response, e.g., before/during the COVID-19 pandemic.

#### 6. Conclusions

Rural health entrepreneurship can be found in most of the countries of the world, regardless of whether they provide out-of-pocket or insured services. It is also important to notice the connection of health and entrepreneurship to the Sustainable Development Goals, regardless of whether or not the entrepreneurs themselves share this value orientation. The major findings of the present study are the difference between the rural health entrepreneurs in terms of their sustainability orientation, emphasizing the importance of education for both profit-oriented entrepreneurship as well as social entrepreneurship among medical students. The second important finding of the study is that there are frugality aspects of rural health entrepreneurship in middle-income countries that relate mainly to the lack of seed investment support, lack of support with regular investment and repair cycles, lack of reliable electric and Internet infrastructure, and low affordability of out-of-pocket health services in the rural regions. Practical implications pertain to the need to support the entrepreneurs in institutionally developing the pro bono work in a more systematic and targeted way and providing the balance between community engagement and financial sustainability of the medical practice in the rural region. The most important practical implication of the research is perhaps the urgent need for considering the modalities of cooperation between the health entrepreneurs and the state health fund as well as introducing professional risk management and planning in the health insurance market by liberalizing the offer of compulsory health insurance.

Health entrepreneurship in developing countries can cause a certain amount of stigma because it provokes moral anxiety and panic for having to charge for health services [19,20]. This is an aspect that has been confirmed in our six case studies; the most problematic appears to be charging for "basic" health services and especially so when providing the services to the poor members of rural communities. These are the situations where most of the health entrepreneurs decide to provide a pro bono service, mostly spontaneously. It is only the most complicated, demanding, and over-the-top services that are charged for regularly. This is something that needs to be taken into consideration by the state health fund, as is expanding the range of basic services to be fully or partially funded in all health providers, regardless of the ownership status. This can reduce the moral panic in relation to health institutions as well as incentives for corruption among the doctors, given proper tracking and controls of the health services would be provided.

The Serbian health system is the only one among its neighboring countries where mandatory health insurance does not cooperate with private medical practices [69]. Current research confirms these findings from the literature and expands it by revealing that certain specialized services such as hyperbaric chambers are actually being provided by private health institutions and paid for by the state health fund, but these are exceptions. In addition, in 1994, the state health fund started to experiment with co-financing the health services in private health institutions, but these changes were quickly abandoned, and the political appetite to pass these legal changes in parliament has vanished.

The Semashko characteristic of Serbian healthcare financing for universal access, although claimed to be very health-access focused, has several shortcomings that have not been previously discussed in the literature: state-run health service providers are not able to charge for services, and undocumented and unrecognized pro bono work is thus carried out, while privately owned healthcare providers have to fully charge patients paying both taxes and social and healthcare contributions. Another issue that the results of the present study confirm, which was already identified in a similar post-Semashko system in Russia [74], is the problem of long patient lists and gatekeeping within public healthcare service providers, while no such lists were identified in private healthcare providers. This has to do with the general state underfunding healthcare. This problem is only exacerbated in Serbia by administrative obstacles on employing new doctors without government approval, even before and during the COVID-19 pandemic, while private practice could employ all medical staff, and there were state agreements with Germany to employ doctors from Serbia in Germany. Due to this, universal access needs to be regularly scrutinized from the perspective of quality, accessibility, and costs in order to truly understand the accessibility and obstacles to accessible healthcare. Keeping in mind the advanced legal framework and practice in public–private partnerships [45,69,70], coupled with the reluctance of the stateowned healthcare providers to employ workers and the consequent growth of the private healthcare sector, more of the attention focused on the health policy makers should go to regulating service contracts with both the state as well as the private sector. In addition, steps should be taken to create a competitive market between private health insurers for both mandatory insurance as well as voluntary additional insurance as yet another form of public-private partnership.

The most important theoretical implications of the presented case study are the application of the concept of frugality in the middle-income, developing country as a novel context for researching this phenomenon. The results of the study also confirmed the nexus of frugality and family aspects regarding the example of rural health entrepreneurship in Serbia. Additionally, the importance of intrinsic values while starting a business has been confirmed, pointing to the relevance of entrepreneurial and sustainability education.

One of the most pressing practical implications of the research, which is relevant both for financing the health services and for ensuring universal access to health services, is the problem of the relation of private medical practices to the state health fund and to official health statistics, as well as the overall understated role in the health system. This is becoming a very big issue as private medical practices grow due to the constraints on new employment in the public health sector, while there are no obstacles in the private sector.

The present article provides evidence on the most important aspects of rural entrepreneurship for sustainable innovation in healthcare, such as frugality as well as family orientation. Keeping in mind the current focus of healthcare policy in Serbia on enhancing the healthcare service quality through voluntary accreditations, the following question remains: which institutions are responsible for addressing the cost and accessibility aspects of providing the healthcare service?

**Author Contributions:** Conceptualization, I.P. and S.A.; methodology, I.P.; software, I.P. and I.B.M.; validation, I.P., I.B.M. and S.A.; formal analysis, M.S.; investigation, I.B.M.; resources, I.P.; data curation, S.A.; writing—original draft preparation, I.P and I.B.M.; writing—review and editing, S.A. and M.S.; visualization, M.S.; supervision, I.P. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was supported through partial funding of the Bonn-Rhein-Sieg University of Applied Sciences.

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study at the beginning of the interview by asking the interview partners to confirm their participation in the interview.

Data Availability Statement: No data are available due to privacy restrictions.

**Conflicts of Interest:** The authors declare no conflicts of interest.

### Appendix A

 Table A1. The Most Important Legal Regulation Dealing with Health Entrepreneurship in Serbia.

Regulation	Years Published/ Modified	Interpretation
Healthcare Law	2019	This law regulates the organization and provision of healthcare services and all aspects of healthcare in the Republic of Serbia. It aims to ensure the standard of adequate healthcare for all citizens in the Republic of Serbia and regulates the rights and obligations of healthcare workers in the performance of their work, as well as the rights of patients. With regard to private practice, founders within the meaning of this law may be one of the following: unemployed medical personnel or medical personnel receiving a retirement pension. The law regulates that a private practice can be established as: (1) Medical practice (general, specialist, and specialty); (2) Dental practice (general and specialist); (3) Polyclinic; (4) Laboratory (for biochemistry with hematology and immunochemistry, microbiology with virology, pathohistology with cytology); (5) Pharmacy with its own practice; (6) Clinic (for healthcare and rehabilitation); (7) Laboratory for dental technology. The law also provides that private practices may not engage in activities related to emergency medical assistance, preparation of blood and blood components, removal, storage, and transplantation of organs, cells, and tissues as parts of the human body, preparation of serum and vaccines, patho-anatomical autopsy and forensic medicine, and public healthcare.
The Law on Health Documentation and Records in the Field of Health	2014, 2015, 2017, 2019	This law regulates the work of health institutions in public ownership as well as private practice. The law itself primarily regulates: (1) the obligation to maintain medical records for each patient, that is, the user of health services—diagnoses, therapies, treatments, and other relevant data; (2) storage and access to medical documentation, referring to the method of storage and the terms of storage of the documentation; (3) the obligation to protect the personal data of patients; (4) the method of keeping records of medical services provided to patients; (5) the use of electronic documentation and records; and (6) standards and procedures for archiving medical records.

Table A1. Cont.

Regulation	Years Published/ Modified	Interpretation
The Law on Medical Devices	2017	The Law on Medical Devices is another law that can affect private practice. Namely, this law primarily regulates the conditions for the production and circulation of medical devices, i.e., their placing on the market and use in the RS, clinical trials of medical devices, monitoring of medical devices on the market, and other issues of importance for medical devices. When it comes to the impact of this law on private practice, it primarily refers to the following: (1) some medical devices used in treatment require registration, i.e., approval for use by competent authorities; (2) in order to be used adequately and serve their purpose, medical devices must meet certain standards of quality, safety, and efficiency, which is also regulated by this law; (3) import, distribution, use, and maintenance of medical devices; and (4) the law regulates the keeping of records on the use of medical devices, the monitoring of potential problems, and the process of informing the competent authorities about them.
The Labor Law	2005, 2005, 2009, 2013, 2014, 2017, 2018	The Labor Law is an act that regulates the employment relationship in the RS. When it comes to private practice, the following are important and are regulated by this act: (1) employment contract; (2) working hours; (3) compensation for work; (4) protection at work; (5) termination of employment; and (6) social rights. This act also contains information on taxes and contributions to wages.
Law on Protection of Personal Data	2018	This act regulates the procedure for the collection, processing, and protection of personal data of citizens. In healthcare, both in public and private practice, it is characteristic to collect a large volume of sensitive personal data about patients. For this reason, this law regulates the following, which refers to private practice: (1) consent of patients before collection and processing of personal data; (2) collection of data only to the extent necessary for the provision of medical services; (3) security, transfer, and storage of data; (4) in accordance with this Law and the Rulebook on Personal Data Protection, private practices are obliged to inform patients about the methods and reasons for processing their data.
Law on the registration procedure in the Agency for Economic Registers	2011, 2014, 2019, 2021	The registration of health institutions is managed by the Agency for Economic Registration. The Law on the Registration Procedure in the Business Register Agency regulates the registration procedure of business companies and entrepreneurs, as well as the conditions under which registration may be invalidated. In addition, the procedure for registering a private healthcare practice is regulated by the Rulebook in terms of the detailed content of the Register of Healthcare Institutions and the documentation required for registration.
The Law on Business Companies		On the bodies of health institutions in private ownership, status changes, changes in legal form, and the cessation of existence are areas where the regulations governing the legal status of companies are applied accordingly.
The Law on Radiation and Nuclear Safety and Security	2018, 2019	This act has an impact on those medical practices that use ionizing radiation (X-ray machines, CT scanners, and others), that is, nuclear materials, in diagnostic and therapeutic practices. Here are prescribed strategies that must be followed in terms of protection and safety, but also standards that health institutions, which work in practices where radiation and nuclear materials are present, must adhere to.
Rulebook on closer conditions for the performance of healthcare activities in healthcare institutions and other forms of healthcare services	2006, 2009, 2010, 2011, 2012, 2013, 2018, 2022, 2023	This rulebook regulates the detailed conditions that must be met by health institutions of the public sector and private practice in terms of personnel, equipment, space, and medicines that are necessary for the smooth performance of health activities.

Regulation	Years Published/ Modified	Interpretation
Rulebook on healthcare quality indicators and quality control of professional work	2021	It regulates the internal and external quality control of health institutions and the private sector, as well as the work of doctors in them.
Rulebook on forms and content of forms for maintaining health documentation, records, reports, registers, and electronic medical file	2016, 2019	This rulebook clearly defines the forms and their content that are used for maintaining health documentation and electronic health files.
Rulebook on the e detailed content of the e Register of Health i Institutions and the 2019 documentation to the e required for the e registration to the e the etail of the et		This rulebook clearly regulates the content and application forms for registration in the Register, as well as the documentation that must be submitted for registration. The documentation that, in accordance with this regulation, must be submitted for private practice registration is as follows: (1) act of establishment;. (2) statute; (3) decision of the competent ministry; (4) decision on the appointment of directors and other persons authorized for representation; (5) proof of the identity of the founder; (6) proof of the identity of the director and other persons authorized for representation; (7) decision of the founder on the establishment of a branch or organizational unit outside the headquarters of the health institution (if not established by statute); (8) the director's decision determining the weekly work schedule and the beginning and end of working hours in the health institution. This rulebook regulates the issue of the name of the health organization, the registration of the name, and the registration of status changes and changes in the name of health organizations.

# Table A1. Cont.

# Appendix B

 Table A2. The Most Relevant Institutions for Financing Health Enterprises in Serbia.

Institution	Description of the Financing Conditions		
Fund for the Development of the Republic of Serbia	The Development Fund of the Republic of Serbia is one of the possible sources of funding for private practice. The Development Fund offers: (1) investment loans; (2) loans for fixed and current assets; and (3) loans for beginners and young people. When it comes to investment loans, they are intended for the purchase of equipment, machines, plants, construction, or business premises. For legal entities, loan amounts range from RSD 1,000,000 to RSD 250,000,000, with a repayment period of 10 years and a grace period of one year. When it comes to entrepreneurs, the repayment period is 8 years with a grace period of one year. The loan amount in this case depends on the creditworthiness of the loan seeker. Loans for fixed and current assets are intended to finance current obligations in the course of business. Loans for beginners and young people. Funds can be obtained to the amount of 30% of the investment value, that is, 40%, for those entities that operate in the territory of local self-government units that belong to the third and fourth categories of development. The amount that can be obtained ranges from RSD 400,000 to RSD 6,000,000.		
National Employment Service	The funds that can be obtained from the NES are modest, but this service certainly appears to be one of the potential sources of funding. The National Employment Service gives the opportunity to receive RSD 300,000 for self-employment for unemployed doctors when it comes to private practice, or RSD 330,000 if the doctor has a disability. The NES regulations clearly stipulate the documents and conditions for obtaining these funds.		

# Table A2. Cont.

Institution	Description of the Financing Conditions		
Bank Loans	In the Republic of Serbia, in total, there are 20 banks in operation. All of them offer loans for entrepreneurs and legal entities. Bank interest rates and conditions differ, but not by much. For young doctors who want to develop a private practice, there are loans from private banks, which are realized in cooperation with the European Bank for Reconstruction and Development. This loan can be used for investments and working capital, but it is necessary to operate as an entrepreneur or a legal entity for 15 months before applying for the loan. Of course, most banks also offer loans for starting a business, but in order to secure larger amounts, a mortgage or some other form of guarantee is necessary.		
EU projects and funds	Those doctors who want to engage in private practice or have already started but need additional funds must follow the tenders for the use of funds for the implementation of projects, which are announced by the EU. Participating in one of the projects when they are announced, which cover the field of healthcare, allows this institution to obtain significant equipment that they use in the process of project implementation but that they can also keep after the project implementation for the performance of their activities. It should also be mentioned that loans given out through the fund for the development of the Republic of Serbia are also in many cases co-financed or fully financed by the EU.		

# Appendix C

**Table A3.** The Most Relevant Documents Relating to Sustainability that are Relevant for Rural HealthEntrepreneurship in Serbia.

Type of Document	Title and Year	The Connection Between Healthcare Entrepreneurship and the United Nations Sustainable Development Goals
Strategy	National Strategy for Sustainable Development (2007–2017): Adopted in 2008, Pending Update	Within this strategy, clear goals and action plans for achieving those goals were defined. Through support for innovation, investments, professional development, and improved education, as well as financial support for the private sector, it was possible to contribute to the strengthening of health entrepreneurship.
	Energy Development Strategy of the Republic of Serbia until 2025 with Projections until 2030	This strategy proposes a path for market restructuring and modernization of the energy sector in the Republic of Serbia. Besides reducing costs, this strategy can have an impact on improving the perception of private healthcare initiatives in the eyes of the community and patients.
	Serbia and Agenda 2030: Mapping the National Strategic Framework in Relation to Sustainable Development Goals (2020)	This document is significant as it highlights "good health" as the third goal. Within the document, specific areas are emphasized that require attention when it comes to the nation's health, aiming to ensure the realization of defined millennium goals. Goals related to health are particularly relevant to the healthcare entrepreneurship sector, with the purpose of achieving universal access to basic health services, improving the health of children and mothers, combating infectious diseases, and strengthening the country's healthcare system.
	Strategy for Prevention and Control of Chronic Non-communicable Diseases + Action Plan until 2018	This strategy deals with cardiovascular diseases, malignant tumors, diabetes, chronic obstructive pulmonary disease, and musculoskeletal system diseases (excluding injuries), as these non-communicable diseases have been a significant burden on the health profile of Serbia for decades. They share common risk factors (smoking, alcohol consumption, improper diet, and physical inactivity) and socio-economic determinants. This strategy guides the work of healthcare institutions in the Republic of Serbia, both in the public and private sectors, particularly concerning chronic non-communicable diseases, with the aim of improving the public health of the nation.

Table A3. Cont.

Type of Document	Title and Year	The Connection Between Healthcare Entrepreneurship and the United Nations Sustainable Development Goals
Strategy	Strategy for the Development of Mental Health 2007–2017	This strategy provided guidelines for all healthcare institutions to improve the mental health of the nation and thereby achieve the defined Millennium Development Goals for sustainable development.
	Drug Abuse Prevention Strategy for the Period 2014–2021	This strategic document aligns with the EU Drug Strategy (2013–2020). It clearly outlines objectives and guidelines that both the public and private sectors in the healthcare field must adhere to in this area. The goals set in the document are to be pursued collectively by these sectors in accordance with the overarching strategy to combat drug-related issues in the specified timeframe
	Strategy for Encouraging Birth Rates 2018	This strategy clearly outlines issues and defines goals aimed at promoting birth rates in the Republic of Serbia, addressing infertility and similar concerns. The provisions of this strategy apply to both public and private healthcare institutions.
Action plan	Action Plan for the Implementation of the National Sustainable Development Strategy for the Period 2009–2017	This action plan defined measures and activities to be undertaken to achieve the sustainable development goals outlined in the strategy. It also specified the responsible institutions for implementation and the resources required for goal realization. Within this action plan, measures and activities related to the healthcare sector and health were also outlined.
	Action Plan for Drug Abuse Prevention for the Period 2014–2021	This accompanying document is a key component, clearly illustrating the goals, institutions, measures to be taken, and financing system for achieving the objectives and implementing actions in line with the previously mentioned strategy.
Law	Environmental Protection Law (2011)	This law, among other things, emphasizes the crucial role of institutions in the field of health entrepreneurship in raising awareness about the importance of environmental protection. Furthermore, it regulates the use and protection of goods of general interest in all aspects of their values, including the healt aspect (SDG 6, 13, 15, 16).
	Nature Conservation Law (2016)	Natural resources play a crucial role in initiating and developin health entrepreneurship. The climate characteristics of a particular area, water quality, and sources of thermal and minera waters contribute to the development of health entrepreneurshij Untouched nature is a characteristic of rural areas that, from thi perspective, is favorable for entrepreneurial initiatives in the field of healthcare (SDG 6, 13, 14, 15).
	Waste Management Law (2016)	This law, among other things, regulates the concept of medical waste and the manner of its disposal. The law is in line with the 12th UN Sustainable Development Goal. Every institution in the field of health entrepreneurship must dispose of medical waste in accordance with the legally prescribed procedures.
	Law on Protection from Ionizing Radiation and Nuclear Safety (2009)	In some private healthcare facilities covered by this research, diagnostic procedures involving devices emitting radiation are conducted. This law regulates the rule that individuals qualified for working with sources of ionizing radiation must do so, and they must be provided with appropriate protection and underg- regular health check-ups. (SDG 3)

lable A3. Cont.			
Type of Document	Title and Year	The Connection Between Healthcare Entrepreneurship and the United Nations Sustainable Development Goals	
Law	Environmental Impact Assessment Law (2009)	The administrative procedure for opening a private enterprise in the healthcare sector, like any business in any other field, is subject to an assessment of the environmental impact, as regulated by this law (SDG 6, 7, 12–15).	
	Social Entrepreneurship Law (Integrating Multiple Objectives)	Social entrepreneurship, among other things, is implemented through the provision of services in the healthcare sector. The manner of realization of this form of social entrepreneurship, entities involved, objectives, and beneficiaries are regulated by this law (SDG 1, 3, 5, 10, 16).	

## Table A3. Cont.

# Appendix D. Interview Questions (Semi-Structured Interview)

- 1. Please state your legal form, starting year, number of employees, whether employees are privately related to you, and the nature of health services provided.
- 2. Please describe the entrepreneurial opportunity and how your services are covering local (rural) needs (the motivation and novelty of establishing the practice in the rural area).
- 3. Can you please describe how are you creating and providing services and how accessible they are (especially compared to the competition; innovative aspects; uninterrupted service to citizens; care for vulnerable social groups; quality of services; and problems in providing the services)?
- 4. Legal, financial, and policy environment (legal framework; financial instruments available; entrepreneurship policy; health fund relations; problems) details.
- 5. Relevance of Agenda 2030 pertaining to economic, social, and environmental sustainability (ensuring universal access to healthcare, the response to global health threats such as more frequent and intense natural disasters, humanitarian crises and forced displacement because of spiraling conflict, violent extremism, and terrorism; maternal, newborn, and child health and reproductive health; environmentally sound management of healthcare waste; protection of labor rights and environmental and health standards in accordance with international standards).

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