sustainability

MDPI

Article

Green Development in the Construction of Family Houses in Urban and Rural Settlements in Slovakia

Mária Moresová [1], Mariana Sedliačiková [1,*], Jarmila Schmidtová [2] and Iveta Hajdúchová [3]

[1] Department of Business Economics, Faculty of Wood Sciences and Technology, Technical University in Zvolen, T. G. Masaryka 24, 960 01 Zvolen, Slovakia; xmoresova@tuzvo.sk
[2] Department of Mathematics and Descriptive Geometry, Faculty of Wood Sciences and Technology, Technical University in Zvolen, T. G. Masaryka 24, 960 01 Zvolen, Slovakia; jarmila.schmidtova@tuzvo.sk
[3] Department of Forest Economics and Management, Faculty of Forestry, Technical University in Zvolen, T. G. Masaryka 24, 960 01 Zvolen, Slovakia; hajduchova@tuzvo.sk
* Correspondence: sedliacikova@tuzvo.sk; Tel.: +421-455-206-420

Received: 5 May 2020; Accepted: 27 May 2020; Published: 29 May 2020

Abstract: Measures that have been implemented to promote green development and environmental protection are increasingly affecting the construction of family houses and hence the economic and social growth. The representatives of the Europe Regional Network of World Green Building Council claim that the building emissions in Europe create up to 36% of the total carbon dioxide production. Therefore, the application of ecological building materials can be one of the possible ways to reach equilibrium between the social-economic growth and green development. The main objective of this paper was to find out the approach of people in urban and rural settlements in Slovakia towards the question of green development in terms of selection of building material for the construction of a family house and their economic-social situation. The issue was mapped in Slovakia using the empirical survey in the form of a questionnaire. The research was evaluated using statistical hypothesis testing methods, descriptive statistics methods, and data visualization. The main economic and social coordinates were identified that influence the choice of building materials for the construction of houses. The results led to conclusions that extend the current knowledge in the field of green development and sustainability in connection with the construction of family houses and the economic–social question in Slovakia. Results indicated that ecological materials are underestimated at nearly 71%. The identified reason for the research is, besides the economic and social issue, mainly the low level of information and promotion of ecological materials that can be used for the construction of family houses, as well as the low level of support by the state of those who are interested in the construction of ecological houses. The following research perspectives in this area should focus even more deeply on the synchronization of ecological, economic, and social aspects of sustainability, not only in the construction of family houses from ecological materials in Slovakia, but also in the construction of public and other buildings in urban and rural settlements.

Keywords: green development; economic and social coordinates; construction of houses; sustainability; urban and rural development; environmental impacts

1. Introduction

Throughout the history of mankind, people have tried to build a shelter that would meet the basic needs of their survival. Reference [1] emphasized that living should not be seen only as a shelter against the weather, but a house must be assessed as a space intended for family life. At present, some tendencies force us to accept this aspect of housing. The authors [2,3] agree that housing conditions are basically most affected by family income, whether in urban or rural settlements. On the other hand,

in the last ten years, the requirements for the construction of houses have been increasing. Climate change has forced builders to find effective solutions that serve people, their comfort, and at the same time mitigate the impact on the environment [2]. At present, as the representatives of the Europe Regional Network of World Green Building Council state, the buildings in Europe produce up to 36% of the total carbon dioxide production. In order to stop, and consequently reduce, the negative impact on the environment, there are tendencies from the national and international environment to eliminate these harmful effects through directives, decrees, regulations, or legislative changes.

Foreign authors [4–6] stress that a large number of building materials, systems, and technologies related to sustainability issues have been developed. At the same time, research on innovations has been developed, assuming the environmental characteristics of these materials, systems, and technologies. The concepts of ecological development and sustainability are emphasized in practice. It is an economic and social development with full protection of the environment.

The term "masonry building", according to the norm [7], is a construction made of bricks, mortar, concrete, or other non-renewable material. At the same time, at disposing of this material or reconstruction of such a building, a lot of non-ecological materials are generated.

The authors [5,6,8] state that the most-used ecological building material in Europe is wood. A wooden house can be built from fir or oak wood, or in Asia and North and South America, wooden houses are also built from bamboo. Other ecological materials include reeds, straw, clay, and a combination of straw and clay. The authors [5,6] emphasize that such materials are considered ecological, the production and also the use of which does not disturb the natural balance. These materials are already used in almost all fields and construction is no exception.

In recent years, wood in building structures has been increasingly discussed in Slovakia. Wood as a building material has an irreplaceable position in terms of the complex of mechanical, thermo-technical, aesthetic, utility, and technological properties, but also the environmental impact. In European countries, wood is considered to be a strategic, yet renewable, raw material that is profitable for national economies. In the Slovak Republic (SR), wood has the highest potential to become the building material for the construction of family houses, as Slovakia ranks among the countries with the highest forestry in Europe. The area of forest land in the SR currently represents 41.2% of the total size of the state. Slovakia is independent in terms of wood production. Experts evaluate wood as a raw material that will be used for construction in the future. Wood, as a permanently renewable raw material in maintained forests with favorable environmental properties, will bring to the foreground especially the expected depletion of reserves of solid, liquid, and gaseous fuels [9–13]. As follows from the above, previous studies about wooden houses in Slovakia have dealt mainly with their construction and design properties, application in practice, and energy intensity. There have been no studies in Slovakia that examined the existence of wooden houses in relation to the socio-economic characteristics of the Slovak Republic. In order to establish wooden houses in Slovakia, it is necessary to examine the potential possibilities of the inhabitants and their preferences in the construction of family houses in urban and rural settlements.

Of course, it is important not to forget the socio-economic question of sustainability and its impact on housing. So far, little has been discussed on this topic. Market economies, as presented by [14], often create different inequalities. This is due to different levels of income, lack of employment, lack of assets, but also different skills, efforts, different investment in education, and so on. Ockenfels believes that most people are concerned about their financial situation compared to the relative income of other people. The status of an individual is determined by the level of income, consumption, and the opinion of the majority [15].

No society can ensure equal opportunities, although not all are willing to admit it. An attempt to homogenize in a non-market and directive economy failed. Each society has been, is, and will probably be differentiated into levels and groups that differ in their share of assets and services, access to power, and the amount of their prestige [16–19].

There are various forms of inequalities; the known are [1,14]: income inequality, wealth inequality, consumption inequality, status inequality, inequalities in education and access to education, inequality in the labour market, and inequality of living conditions and their risks.

In the context of differentiation of the social classes of the population, many domestic and foreign authors [1,18,20,21] have emphasized that in current market economy conditions, responsibility for procuring own housing is basically transferred to the citizen; i.e., proportionally to the economic possibilities of individuals and households. Therefore, the construction is affected by several factors, such as social, economic, cultural, ethical, religious, and others. These factors significantly affect the preferences of people, which of course also affects the choice of building material. Regarding the above, it can be stated that immediate satisfaction of the need for housing is much differentiated in individual countries. At the same time, this means that sustainability must be perceived not only in terms of environmental aspects but also in terms of economic and social aspects that affect the welfare of the whole society. This paper aims to find out how people in urban and rural settlements in Slovakia approach the issue of green development and sustainability in relation to the choice of building materials for the construction of a family house and their economic and social situation.

2. Literature Review and Hypothesis

Until the mid-18th century, thanks to the rich forests, the construction of wooden houses in the territory of Slovakia prevailed to a much greater extent than it was preserved until the beginning of the 21st century. The authors in [22–24] stressed that in comparison with other European countries, the development of urban wooden buildings was lagging behind in Slovakia due to the inability to solve the problems of fire safety and subsequent so-called fire decrees from the 19th century that restricted or prohibited wooden buildings in the towns. Later in the late 1950s and early 1960s, the state program "Reduction and Replacing Wood in Building Industry" was issued, and within the concept of prefabricated concrete systems it pushed out wooden buildings not only in construction but also from vocational educational programmes and research. This trend has significantly influenced the construction of houses until now, not only in urban but also in rural settlements.

As stated by [25], masonry buildings, although eliminating the use of ecological materials for the construction of houses, have their indisputable advantages. Their advantages include, according to [26], that they do not need any additional protection in the form of preservatives, are resistant to insects and fungi, and even protect against electrosmog. Thanks to durability and economy, the investments put in the construction of a masonry house guarantee a lasting value. A significant advantage lies in the possibility of self-build with a lower need for construction knowledge and the availability of building materials. On the other hand, ecological thinking is becoming more and more popular [27,28], and this influences the choice of material, and the demands put on construction through norms, regulations, and decrees have also increased.

As [29] claimed, the service sector has long been considered one of the fastest-growing areas since the 1990s. As wooden buildings are part of the folk architecture of the Slovak Republic, small entrepreneurs in tourism try to attract customers by a unique atmosphere created by cabins, sheds, or log houses made of solid wood. At present, the demand for services in the accommodation and catering sector is increasing, as the number of visitors to the SR has significantly grown. This fact is confirmed by data of the Statistical Office of the Slovak Republic [30] since, in 2018, 5023 million tourists visited Slovakia. Compared to the year 2017, this is an increase of 16%. A total of 60% of all visitors were Slovaks and the rest were foreign tourists.

To build a family house is a complex and demanding process [31–33]. For many people, it is one of the most serious and important decisions that will accompany them throughout their lives. The construction of the house should be thoroughly planned and prepared. Construction can be realized in several ways. The most economical way is self-build. This is suitable for builders who have no sufficient financial sources to contract a company. This way is cheaper but more time demanding. A masonry house, as [34] stated, is the most suitable solution for the self-builders. On the other hand, the

construction of wooden houses and use of other ecological materials intended for the construction of a family house is not recommended in the case of self-build because the construction process is more complicated and requires not only practice but also professional knowledge [26,35,36]. At the same time, a masonry building that people build by themselves can be interrupted or stopped at any time due to lack of finances.

The choice of building material is influenced not only by current economic and social factors but also by historical facts. According to [22,24], the main reason for the restriction and later almost complete replacement of wooden houses was the measures of Maria Theresa and Joseph II, known as "fire decrees". Later in the 1950s, reinforced concrete structures were again used to a large extent. Changes in preferences of building materials were not transformed only to the towns but they also hit the life of Slovak villages [37]. Gradually, a radical socio-economic change of rural transformation process occurred. According to [38–40], in the 1960s, large fires affected log cabins built mainly in the northern part of Slovakia. This fact significantly impacted further construction. Over time, this process was linked to the increasing penetration of global technological progress that reflected in all aspects of social life. The result was a total rebuilding of villages to their present form. Masonry houses became a symbol of a higher standard of living and better quality of life [37].

The urban environment is at the center of attention for several reasons. The most fundamental is that towns are expanding and according to [41], these tendencies will continue in further years. Towns provide the inhabitants with many services and functions. Each of the functions (housing, employment, culture, and relaxation) is manifested by its characteristic structure and also by different pressures on the environment, which is constantly increasing in the form of increased traffic load, air pollution, external noise, overheating of public spaces, etc. Therefore, people in towns nowadays prefer ecological materials [20,42]. This also applies to wooden houses. Wooden houses minimize the impact on the environment but at the same time maximize the comfort of living in terms of thermal comfort and indoor air quality, lighting, acoustics, and mental well-being.

Satisfying housing needs as one of the basic human needs is generally determined by the level of socio-economic development of society. The construction of family houses is influenced by several factors, such as social, economic, cultural, ethical, religious, and others. These factors significantly affect the preferences of people, which of course also affects the choice of building material. Current ecological materials intended not only for the construction of family houses [43] have undergone a long evolution and meet all housing requirements while minimizing the impact on the environment. The authors in [33,44,45] stressed that distrust in ecological building materials (e.g., wood) is still rather high at present. It is mainly influenced by the historical development of construction in Slovakia and differentiation of population according to social classes.

The following hypothesis were defined from the literature review:

Hypothesis 1 (H1): *It is assumed that the majority of people in SR prefer to build a masonry family house as if using ecological materials for its construction (such as wood);*

Hypothesis 2 (H2): *It is assumed that the majority of people who have decided and built a family house from ecological building material in SR use it for business activities in the accommodation and catering sector;*

Hypothesis 3 (H3): *It is assumed that the main reason for the preference for masonry houses over the more ecological variants (e.g., wooden houses) in SR is the self-build;*

Hypothesis 4 (H4): *It is assumed that in SR, mainly people from the age of 26 to 45 years would build a family house from ecological materials (e.g., wooden house);*

Hypothesis 5 (H5): *It is assumed that Slovaks living in towns will prefer the ecological building of family houses more than Slovaks who live in rural settlements.*

Hypothesis 6 (H6): *It is assumed that Slovaks who have not built their family house from an ecological building material perceive its characteristics as more negative than those who have built such a house (e.g., from wood).*

3. Materials and Methods

The purpose of the study was the idea of how to support green development and sustainability concerning the selection of building materials for the construction of family houses in urban and rural settlements in Slovakia, depending on the economic and social characteristics of the population. In the first phase of the research, based on the analysis of secondary sources, it was necessary to carry out a literature search of domestic and especially foreign authors. Based on this analysis, the objective, hypothesis, and methodology of primary research were determined. The results of the research led the authors to identify the current situation and to determine basic proposals for promoting green development and sustainability in urban and rural settlements in SR.

The main objective of the survey was to find out how people approach the question of green development and sustainability in terms of choice of building material for the construction of a family house in the urban and rural settlements in Slovakia. The research was carried out in the first half of 2019 as primary research using a questionnaire distributed to 3428 selected Slovak citizens. A total of 728 completed questionnaires, representing 21.24% of the total number of distributed, were returned. The statistical software Statistics 12 was used to evaluate the results of the research. When testing the hypothesis, the authors of the article worked with the significance level $\alpha = 0.05$.

Primary data were collected through a two-part questionnaire. Part A consisted of eight questions focused on socio-economic identification of the Slovak population. Question A1 asked about the permanent residence of the respondent in the SR (town or village). Question A2 focused on identifying the age of the respondent (0–18, 19–25, 26–35, 36–45, 46–55, 56–65, 66 and more), A3 on the marital status (single, married, partnership, divorced, other), A4 on the number of children (0, 1, 2, 3, or more children), A5 on the highest educational attainment (basic, secondary without GCSE, secondary with GCSE, university degree), A6 on the current employment of the respondent (student, an employee in the private sector, employee in the public sector, sole trader, entrepreneur, unemployed, retired, other), and the last question A7 concerned the monthly income of the respondent (up to EUR 400, EUR 401–600, EUR 601–800, EUR 801–1000, EUR 1001–1200, EUR 1201 and more).

Part B consisted of seven questions aimed at finding out how people in urban and rural settlements in Slovakia are approaching the issue of green development and sustainability concerning the choice of building material for the construction of a family house. Question B1 verified whether the respondent would prefer a masonry house, ecological materials (such as wood, clay, straw), or a house with a steel structure. In question B2, respondents stated how much they are willing to invest in their housing (max. EUR 50,000, EUR 50,001–100,000, EUR 100,001–150,000, EUR 150,001–200,000, EUR 200,001, and more), and in question B3 they specified the source from which they would finance the construction of the house (own resources, own resources and help from relatives, own resources and mortgage, mortgage, other). Question B4 was used to find out whether the respondents who already owned a family house built from ecological materials used it for business purposes in the accommodation and catering sector. In question B5, respondents should indicate how they learned about ecological materials that are used to build a house. In the penultimate question, B6, it was found out what the respondents consider to be the main reason for preferring masonry houses over the houses from ecological materials. In the last question, B7, the respondents assessed the characteristics of a house built from ecological material (wooden house) in comparison with a masonry family house. This question was evaluated on the Likert scale, where 1 was positive, 2 was neutral, and 3 was negative. The Likert's scale enabled the authors of the article to determine not only the content of the opinion but also its strength.

According to the methodology of determination of minimum sample size, as stated below, we could determine the minimum sample size of the respondents to maintain the condition of generalization of the results.

$$n \geq \frac{z^2 \times p \times (1-p)}{c^2} \quad (1)$$

For the correct calculation of minimum sample size, it is necessary to understand well the individual variables of the Formula (1) that enter into the relationship. The result of the relationship is the variable n, which indicates the minimum required number of respondents. The "z", as the second variable, is a value that is inserted into statistical tables. At the confidence level of 95%, the variable z is equal to 1.96; at 99% confidence, it is equal to 2.58. The third variable is p. In this case, p represents the proportion of the character. At unknown values, 0.5 is inserted for p. The last variable is c, which presents the permissible error range. In a typical marketing survey, it is set on a scale of 2% to 10%. As stated by [46,47], the level of significance is used in mathematical statistics (also in economic applications) of 5% ($\alpha = 0.05$).

After substituting the appropriate values into the formula, the authors could calculate the minimum sample size:

$$n \geq \frac{z^2 \times p \times (1-p)}{c^2} \rightarrow n \geq \frac{1.96^2 \times 0.5 \times (1-0.5)}{0.05^2} \rightarrow n \geq 384 \quad (2)$$

The calculation showed that the sample size must be at least 384 respondents, i.e., inhabitants of Slovakia in the age category 19–55 years. Since 728 respondents participated in the survey, the survey results can be generalized on the entire basic set—the survey fulfilled the condition of minimum size.

The following testing methods were used to evaluate the research results of the hypothesis: binomial test, Chi-square test, Mann–Whitney U test. In addition, the interval estimation of relative frequencies and the coefficients assessing the strength of the contingency—contingency coefficient C and Cramer's V—were also calculated. As in other statistical tests, according to [48], in this test we also concluded on the agreement or difference between empirical and theoretical distribution.

H1 and H2 were tested through a binomial test that tested the null hypothesis in accordance with the population share. The test answered the question whether it is possible to claim, based on the sample, that the share in the basic set is equal to a certain number, or another share in the set (or is bigger or smaller than the given number/another calculated share).

H3 was verified through an interval estimation. The authors used the relationship for the calculation of the 95% confidence interval for relative frequency [49].

H4 and H5 were tested through the Pearson´s coefficient of contingency C and Cramer's coefficient of contingency V. Modified Pearson's coefficient of contingency C, as [48,50,51] presented, served for the following of the strength of dependence between the qualitative factors.

H6 was verified through the Mann–Whitney U test. As [50,52] emphasized, the two-choice Mann–Whitney U test is used for the evaluation of unpaired tests when we compare two independent samples in the case when the data have no normal distribution.

4. Results and Discussion

A total of 728 respondents participated in the research about the issue of green development and sustainability concerning the choice of building material for the construction of a family house. A total of 54.4% of respondents lived in the countryside and 45.6% in towns. The basic characteristics of the respondents are presented in Table 1.

Table 1. Answers of the respondents—questions A2–A6.

Questions	Answers			
A2—age of the respondent	19–25 years old	26–35 years old	36–45 years old	46–55 years old
	23.62%	35.58%	33.24%	7.56%
A3—marital status	single	married	partnership	divorced
	25.5%	49.1%	12.6%	12.8%
A4—number of children	1 child	2 children	3 and more	without children
	26%	35.6%	26,9%	11.5%
A5—education	secondary education without GCSE	secondary education with GCSE	university degree	0.0%
	13.5%	22.3%	64.2%	0.0%
A6—employment of the respondent	student	an employee in the private sector	employee in the public sector	sole trader
	4.9%	3.6%	39%	33.7%
	entrepreneur	unemployed	retired	other
	3.8%	8.4%	6.6%	0%

The monthly income of respondents is presented in Figure 1. As stated by [53], income and amount of investments are characteristics that affect the quality of life of people in society, their housing, and create social inequalities. These pass from one generation to the other, creating groups of people integrated into a particular social hierarchy. Several theorists, from Marx through Weber to Sheofer, Wilson, Braun, Berger, and Sen, have dealt with the issues of social inequality.

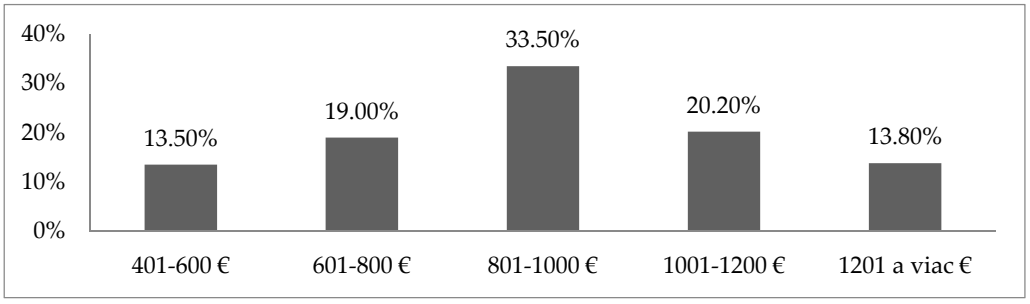

Figure 1. Monthly income of the respondents.

The shopping preferences of the population are influenced by many factors that may change over time. The presented results were focused on the target group aged 19–55 years. Basic characteristics such as residence (city/village), marital status, number of children, education, employment, and income were included among other classification features. The results contained in the study were based on these basic characteristics of the population. If other studies (with other basic characteristics) are performed, different results may be obtained.

In the second part of the questionnaire survey, attention was paid to the preference of building material for the construction of a family house in urban and rural areas in the context of green development and sustainability. This question (B1) was directly linked to the H1: *It is assumed that the majority of people in SR prefer to build a masonry family house as if using ecological materials for its construction (such as wood).* Respondents had the opportunity to choose from the following main materials in the questionnaire: masonry building materials (brick, concrete, porous concrete, and the like), ecological building materials (wood, straw, clay, etc.), steel structures, and others. According to the results of the

questionnaire survey, 70.6% of respondents would prefer silicates, i.e., they would build a masonry house. On the other hand, only 22.8% of respondents would prefer ecological building materials (most often wood). The other 6.6% of respondents indicated the possibility of steel construction. The validity of the H1 was verified by means of a binomial test. The results of the binomial test are shown in Table 2.

Table 2. Binomial test for the H1.

Binomial Test						
		Category	**N**	**Observed Prop.**	**Test Prop.**	**Exact Sig. (2-tailed)**
B2_requires	Group 1	0	514	0.8	0.7	0.000
	Group 2	1	166	0.2		
	Group 3	-	-	-		
	Total		680	1.0		

The results of the binomial test confirmed the H1 ($p = 0.000$), i.e., the majority of people in SR would prefer to build a masonry family house compared to using ecological materials for its construction (such as wood). Wooden buildings and family houses built from other ecological materials have minority representation in Slovakia [54]. In fact, only 1000 wooden buildings are built in Slovakia per year; statistics do not even monitor data on the construction of houses from other environmental materials [55].

In the next question (B2), respondents indicated how much they were willing to invest in their housing. The results are presented in Figure 2. This question was followed by question B3. In addition to the amount of finance that respondents were willing to invest in their housing, the source of funds was also important. A total of 36.1% of the respondents planned to finance (or financed) their housing from their own resources and sources from relatives (parents, grandparents, etc.). A total of 30.9% of respondents used their own resources and mortgage to finance their housing, and 20.2% of respondents planned to finance (or had financed) housing from their own resources. Other Slovaks were interested in financing their housing only through a mortgage, as reported by 12.8% of respondents.

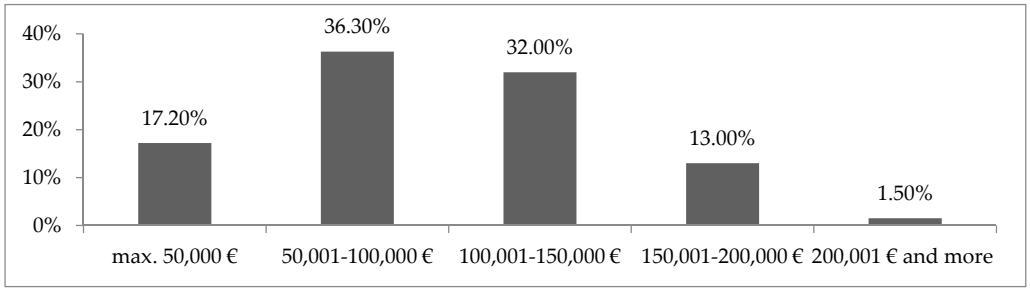

Figure 2. Investment amount into a family house.

With regard to the developed tourism in Slovakia, it was necessary to examine, through question B4, whether respondents who owned a family house built from ecological materials used it only for their needs or for business purposes in the catering and accommodation sector. The results showed that out of 728 respondents, 27.2% of respondents owned such a construction (most often a wooden house) and used it for business purposes in the above-mentioned sector. On the other hand, 11.54% of respondents stated they owned a family house built from ecological material, but did not use it for business purposes, only as a family house. A total of 0.96% of respondents made up a specific group who owned a building constructed from ecological material but used it for business purposes in a sector other than accommodation and catering. Other respondents (60.3%) did not own a building constructed from ecological materials. This question was related to H2. The hypothesis was tested through a binomial test and the results are presented in Table 3. The results confirmed the validity of

the H2, *that the majority of people who have decided and built a family house from ecological building material in SR use it for business activities in the accommodation and catering sector (p = 0.000).*

Table 3. Binomial test for H2.

Binomial Test						
		Category	**N**	**Observed Prop.**	**Test Prop.**	**Exact Sig. (2-tailed)**
B4_requires	Group 1	1	198	0.27	0.5	0.000
	Group 2	0	7	0.01		
	Group 3	0	84	0.12		
	Group 4	0	439	0.60		
	Total		728	1		

The achieved results are equal to the results of [29,30], who have been monitoring the development of tourism in Slovakia for many years. The number of tourists in Slovakia increases every year. According to the Statistical Office of SR (2019), nearly 6.5 million tourists were accommodated in SR in the year 2019—increase by 15% year-on-year [56]. The main forms of tourism in the Slovak Republic are spa and health tourism, rural tourism, agritourism, sport-tourism, and cultural-sightseeing tourism. It is obvious that wooden constructions (especially log houses and cabins) and buildings from other ecological materials attract tourists, so the local people have the opportunity to make business in the accommodation and catering sector.

In question B5, the Slovaks had to indicate how they gained knowledge about the ecological materials that can be used for the construction of a family house. Respondents learned the information about these materials first of all because they already had a family house built from ecological materials (mainly wooden houses) (34.4%). A total of 19.5% of respondents gained the information from the internet, 16.7% from friends or relatives, and 12.9% of respondents worked in the area of eco-building. The low awareness of building materials was also confirmed by the fact that only 7.2% of respondents obtained this information from magazines and books and 5.9% from television. Only 3.4% of Slovaks have information about ecological materials from fairs.

The question B6 was included in the questionnaire to verify H3: It is assumed that the main reason for the preference for masonry houses over the more ecological variants (e.g., wooden houses) in SR is the self-build. The validity of H3 was verified through an interval estimation. The results of the interval estimation confirmed that up 98.71% to 99.91% of all Slovaks would prefer a masonry house over a more ecological variant of a family house due to self-build. Visualization of the descriptive statistics is presented in the following Figure 3.

In this case, the affirmations of foreign authors [1,20,21] have been confirmed that in current conditions of the market economy, the responsibility for the acquisition of own housing is basically transferred onto the citizen, so the availability of housing is thus directly proportional to the economic possibilities of individuals and households. Therefore, the construction is affected by several factors, such as social, economic, cultural, ethical, religious, and others. Economic factors are often the most important in the viewpoint of the population. To minimize the cost of housing, the population favors the possibilities where they can provide the most activities by themselves. The results are supported by the authors in [3,6], who claimed that the definition of sustainability is multidimensional, within which economic, environmental, and social issues should be developed to ensure a better understanding of the context. The majority of researches in this area have been related only to two dimensions—economic and environmental. However, the social dimension seems to be the key factor to support the continuous sustainability of the population.

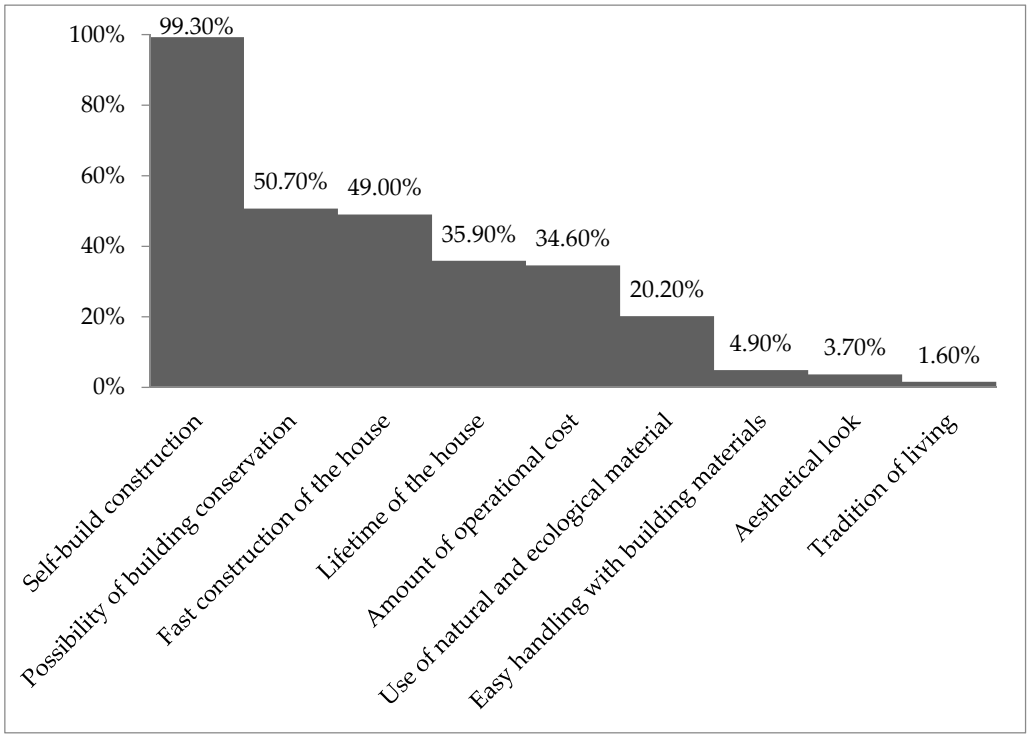

Figure 3. Main reasons for the preference for masonry family houses.

The choice of building material is influenced not only by the current economic and social factors, but also by everything that people have experienced and inherited from their ancestors. Based on the searched literature, the authors found that ecological buildings (in the territory of Slovakia, mainly wooden houses) were affected by many fires (in the past), which significantly impacted the lives of people. The fires were the main reason why Maria Theresa and later Joseph II took measures that led to the reduction of ecological construction. They were later entirely replaced by masonry constructions. The older age categories, in particular, remember these events that had a negative attitude towards wooden constructions [22–24]. The validity of H4 was verified utilizing the questions A2 and B1.

For the statistical verification of H4, the authors applied the Pearson's chi-square test V in Statistics 12. As the results of the test showed, $p = 0.000$, i.e., the difference was too big to be just a consequence of a coincidence (it was statistically significant). H4 was confirmed, i.e., *that in SR, mainly people aged from 26 to 45 years would build a family house from ecological materials (e.g., wooden house).* The results showed that historical events in connection with large fires of wooden buildings also influenced the thinking of individual generations. Reference [57] reported similar results, stating that ecological buildings are nowadays particularly appealing to young people, who are looking for quality and healthy housing, which is, at the same time, cost-effective. In terms of dimensions and layout of family houses, they choose a reasonable ratio between simplicity, savings, and comfort. This type of house dominates especially in the countryside, where architects give a modern look to the traditional buildings. Recently, according to [57], the most popular family houses are uncomplicated houses with a sloping roof, in a low-energy (or passive) standard and a simple archetypal form. In connection with the preference for eco-houses, reference [58] also emphasized the necessity to educate architects able to design and construct buildings from ecological materials. In most cases, young architects do not have the necessary experience with the construction of wooden houses, which results in architecturally tawdry—unattractive—buildings. There are very few professional and practically experienced architects and designers in Slovakia for this area of construction. As stated by the authors in [59], the current problem in the Slovak labor market (in general) is the lack of skilled labor. The main reason is the lack of interest of students in studying technical specializations. Over the last ten years,

the number of students who would be interested in technical knowledge has dropped significantly, or the "brain drain" to foreign countries has happened.

Throughout existence, people have always strived to improve the quality of their lives [1]. There is much talk about ecology and a healthy lifestyle nowadays. On the other hand, in market economy conditions, responsibility for the acquisition of own housing is basically transferred to the citizen. The availability of housing is thus directly proportional to the economic possibilities of individuals and households. In towns, there is a higher concentration of CO_2 [9,42], and people in towns, in particular, prefer a cleaner and greener environment. As eco-buildings minimize the impact on the environment but at the same time maximize the comfort of living, both in terms of thermal comfort and indoor air quality, lighting, acoustics, and mental well-being, these are an ideal solution for them. H5 was based on the above-mentioned: *It is assumed that Slovaks living in towns will prefer the ecological building of family houses more than Slovaks who live in rural settlements.*

The question A1 was related to this hypothesis, where it was questioned whether the respondents lived in town or a village, and then question B1, in which the respondents stated whether they preferred a masonry house or an eco-building. Data for the calculation of statistical indicators are presented in Table 4. For the statistical verification of the H5, the authors used the Pearson's chi-square test V. As the results of the test showed (Table 5), $p = 0.000$, i.e., it was smaller than the chosen level of significance of 5% ($\alpha = 0.05$), we had to refuse the null hypothesis and accept H1, i.e., the difference was too big to be just a consequence of a coincidence (it is statistically significant) and there was a dependence between the preference of the building material and location of the permanent residence (town/countryside). The Cramer's contingency coefficient V (Table 5), which was 0.52, confirmed a medium-strong dependence (contingency). In view of the above, it can be stated that the results confirmed the validity of H5, i.e., *that Slovaks living in towns will prefer the ecological building of family houses more than Slovaks who live in rural settlements.* As [60,61] claimed, ecological construction was, in the past, preferred in the territory of SR mainly due to the abundance of the building material—wood. The socio-economic conditions of the population also influenced the preference for wooden houses—in the past, mainly people in villages lived in wooden houses. Wooden houses were a symbol of poor people. It is this fact that can still affect the current thinking of people in rural settlements. On the other hand, the urban environment is at the center of attention for several reasons. As stated by the authors in [41], not only more people but also industry is concentrated in cities, which directly burdens the environment by producing higher emissions compared to villages. Therefore, people in cities nowadays prefer ecological materials [20,42].

Table 4. Contingency table.

A1	B1 Masonry House	B1 Eco-House	B1 Steel Structure	Sum
countryside	332 [a]	16 [a]	48 [a]	396
column	83.84%	4.04%	12.12%	
town	182 [a]	150 [a]	0 [a]	332
column	54.82%	45.18%	0.00%	
Total	514	166	48	728
countryside	2795.934 [b]	902.967 [b]	2610.989 [b]	3960.000
town	2344.066 [b]	757.033 [b]	2189.011 [b]	3320.000
Total	5140.000	1660.000	4800.000	7280.000
countryside	52.4066 [c]	−74.2967 [c]	21.8901 [c]	0.00
town	−52.4066 [c]	74.2967 [c]	−21.8901 [c]	0.00

[a] observed frequencies; [b] expected frequencies; [c] residual frequencies.

Table 5. Results of the Chi-square test.

Statist.	χ^2	sv	Asymp. Sig. (2-Tailed)
Pearson C	195.83	df = 2	0.000
φ	0.52		
contingency coefficient	0.46		
Cramer V	0.52		

The final H6 was verified through questions B4 and B7, where we assumed that Slovaks who have not built their family house from an ecological building material perceive its characteristics to be more negative than those who have built such a house (e.g., from wood). The authors found from question B4 that 39.7% of respondents had built a building (family house) from ecological material and others (60.3%) did not own such a building. Respondents in question B7 expressed their opinions on the characteristics of a family house built from ecological building material in comparison with masonry houses in the following basic characteristics: construction speed, self-build, the resistance of the building material to pests and natural disasters, the lifetime of the building, fire safety, burglary protection, volume and shape changes of the building material caused by temperature and humidity, and acoustic thermal insulation properties. With question B4 it was possible to select who already owned a family house built from ecological materials and who did not.

The results showed that the construction speed of a family house from ecological building material such as wood, straw, clay, etc., (eco-house) was perceived negatively by 51.3% of respondents in comparison with a masonry house. On the other hand, 39.9% of respondents perceived the construction speed of eco-house positively. A total of 26% of respondents assessed the self-build positively and up to 62% had a negative attitude. The results also confirmed the findings of the previous question, in which the main advantages of masonry houses were identified. The resistance of the building to pests was perceived negatively by up to 66% of respondents, only 25.6% of respondents had a positive attitude. The situation was similar to the resistance of the eco-house to weather and natural disasters. Nearly 50% expressed a negative attitude and only 27.6% of respondents positive. The lifetime of an eco-house was perceived positively by 22.7% of respondents. In terms of the fire safety of houses from ecological building materials, almost 61% of respondents did not trust them. Only 8.5% of respondents believed in securing eco-houses against burglary. Volume and shape changes of the eco-house caused by temperature and humidity were perceived negatively by almost 53% of respondents. When examining how respondents perceived the acoustic properties of the eco-house, up to 39.6% answered negatively. Only less than 20% of the respondents answered positively. From the obtained answers it is obvious that the general public does not have sufficient information about the properties of family houses built from ecological building materials that do not burden the environment. The situation is similar when evaluating the thermal insulation properties of an eco-house, which were perceived negatively by up to 40.2% of respondents. In the issue of comparing the properties of masonry structures and those that were built from ecological materials, the authors in [45,62,63] emphasized that eco-buildings can fully compete with masonry houses, while they bring something extra—well-being and healthier air. The authors supported their statements with the Regulation of the European Union (Parliament and Council) No. 305/2011—Basic requirements for constructions. A building cannot be approved without meeting the requirements set out in this regulation. All structures to be constructed must be suitable for the purpose for which they were constructed and must not endanger human health and safety.

For the statistical validation of H6, the authors used the Mann–Whitney U test in Statistics 12.

As the results of the test showed (Table 6), $p = 0.000$. By means of the Mann–Whitney U test, the validity of the last hypothesis, H6, was verified, i.e., Slovaks who have not built their family house from an ecological building material perceive its characteristics more negatively than those who have built such a house (e.g., from wood).

Table 6. Mann–Whitney test.

Ranks				
		N	**Mean Rank**	**Sum of Ranks**
Evaluation of eco-house characteristics in comparison with a masonry house	positive	328	0.00	68,303.00
	negative	400	0.00	197,053.00
	total	728		
Test Statistics				
	Evaluation of eco-house characteristics in comparison with a masonry house			
Mann–Whitney U	0.000			
Z	−18.2126			
Asymp. Sig. (2-tailed)	0.000			

It is possible to state from these findings that there is long-term non-objective information about buildings from ecological materials among laypeople as well as the professional public. These cause misconceptions about the real characteristics of such constructions. The authors in [64,65] clearly claimed that ecological materials have always been used as a building material for the construction of houses and meet all requirements to be considered as the healthiest building material. Reference [58] also agreed with these results, and stated that the reason why the ecological buildings are not popular in the SR (unlike, for example, in Germany, Austria, or other countries) is the insufficient professional readiness of the realization undertakings and small impact of good examples of realized constructions from Germany or Scandinavia. He added that in Slovakia, not enough attention is paid to the promotion of the advantages and disadvantages of eco-construction in comparison with masonry construction. Ecological buildings in the SR do not influence the image of people who have built it, nor do they increase their social status like in other EU countries. Even though at present, a big emphasis is put on the environment. Reference [66] also gave various reasons for the lower popularity of eco-houses in our country. These included mainly: lack of financial sources of young families (which is associated with low incomes and the inability to pay long-term loans), price of building plots and utility infrastructures, price of ecological building itself (mainly due to high prices of quality material for its construction), low level of state support for the construction of eco-houses, insufficient public awareness of the advantages and disadvantages of ecological buildings, etc. As [67] stated, especially people belonging to the middle class or older generation have prejudices about eco-buildings, and on the other hand, younger and financially well-off people perceive eco-buildings positively. Reference [63] emphasized that the current situation in the area of low interest of Slovaks in eco-buildings is caused by almost no publicity and prejudices that are based on the past. Wooden houses, in particular, are still perceived as housing for poor people, and straw or clay houses have an even worse reputation. At the same time, low-quality building structures of eco-buildings have also contributed to the spread of prejudices and their long-term predominance in society. The author also drew attention to bad education, where the fairy-tale about the three piglets has negatively impacted our awareness of ecological structures since our childhood. On the other hand, [61] pointed out that the reasons that hinder the growth of eco-buildings in the Slovak Republic were principally the outdated fire standards, which did not allow the construction of multi-storey buildings from eco-materials. Practice in western countries has shown that even from ecological materials (especially wood) it is possible to build multi-storey buildings, e.g., in London or Milan, there are nine-storey wooden buildings, in Canada and Sweden we can find even thirty-storey wooden buildings. A change in the marketing strategy of existing companies involved in the construction of wooden houses can also contribute to the main way how to support the construction from eco-materials. As [68–70] agreed, there is no universal "miracle" marketing strategy. The most essential is to know one's own company and customers, only, in this case, it is possible to

set up a suitable marketing strategy. With regard to the presented facts, mainly Slovaks in the age range from 26 to 45 who live in a marriage bond and have one or two children would be interested in a family house built from ecological building materials (such as wood, clay, straw, etc.). Moreover, they graduated from a university, live in a town, work in the position of an employee in the private sector or make their own business, and their monthly income per one person is in the range from EUR 800 to 1200. They long for peace and comfort in their own house and at the same time feel ecologically and environmentally friendly. The twenty-first century brings widespread marketing opportunities. The authors in [70] pointed out that it is no longer possible to present oneself without using digital (internet) strategies that are implemented online. The advantage of these strategies is that they are proven by practice, especially in micro-, small-, and medium-sized enterprises (i.e., enterprises that employ from 1 to 249 people). Of course, large enterprises can also apply these strategies, but they can afford more costly strategies. These strategies include advertisements on Facebook and Instagram, Google My Business, content marketing, webinar, and others. As mentioned above, it is not possible to define a universal marketing strategy that companies should use to make themselves visible. It is up to them what they choose and how they address potential customers.

5. Conclusions

To protect the environment and achieve sustainability, it is necessary to consider not only environmental but also economic and social aspects that influence the welfare of the society. At the same time, it is important to take into account the cultural and historical values that pass from generation to generation. Only complex solving of the issue can support the more ecological construction of family houses from ecological materials, such as wood, straw, or clay, and others.

The aim of this paper was to find out how people in urban and rural settlements in Slovakia approach the issue of green development and sustainability concerning the choice of building materials for the construction of a family house and their economic and social situation. Following the defined goal, six hypothesis were formulated.

People from towns (45.6%) as well as from rural settlements (54.4%) participated in the survey. The results confirmed that the majority group of Slovaks prefer a masonry house to a family house built from ecological material. At present, almost 71% of Slovaks would build a masonry house, confirming the validity of H1 ($p = 0.000$). In Slovakia, out of 728 respondents, 33.5% of respondents owned such a building built from ecological material for business in the accommodation and catering sector. Through the binomial test, the validity of the second hypothesis was confirmed, i.e., that the majority of people who have decided and built a family house from ecological building material in SR use it for business activities in the accommodation and catering sector. The main reason for the preference for masonry houses over the more ecological variants (e.g., wooden houses) in SR is the self-build. The validity of this H3 was confirmed ($p = 0.000$). The results confirmed that mainly people in the age range from 26 to 45 years would build a family house from ecological materials (e.g., wooden house), i.e., H4 was confirmed ($p = 0.000$).

The penultimate hypothesis, H5, assumed that Slovaks living in towns would prefer the ecological building of family houses more than Slovaks who live in rural settlements. The validity of this hypothesis was confirmed ($p = 0.000$). In the last (sixth) hypothesis, the authors assumed that Slovaks who have not built their family house from an ecological building material perceive its characteristics more negatively than those who have built such a house (e.g., from wood). The results revealed that the p-value (0.000) was lower than the determined level of significance ($\alpha = 0.05$), which enabled us to conclude that the hypothesis had been also confirmed. The results indicate that there is not sufficient objective information about building materials among the laypeople and professional public, and priority is given to materials from which Slovaks can construct by themselves. In addition to the economic and social issues, attention should be paid to higher awareness and promotion of ecological materials that can be used for the construction of houses, as well as a low level of support from the state for people who are interested in the construction of ecological houses.

The authors are convinced that the results of this research can be generalized. As a practical tool for marketing, a buyer profile was generated from the results. With regard to the presented, a family house, which would be built of ecological building material (such as wood, clay, or straw), would be of particular interest to Slovaks aged between 26 and 45, who live in a marriage bond and have one to two children. They graduated from a university, live in a town, work in the position of an employee in the private sector, or make their own business, and their monthly income per one person is in the range from EUR 800 to 1200. They long for peace and comfort in their own house and at the same time feel ecologically and environmentally friendly.

The following research perspectives in this area should focus even more deeply on the synchronization of ecological, economic, and social aspects of sustainability, not only in the construction of family houses from ecological materials in Slovakia, but also in the construction of public and other buildings in urban and rural settlements.

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

Funding: This paper has been supported by funds of the projects Slovak project agency APVV–projects APVV-18-0520, APVV-18-0378, APVV-17-0456 and APVV-17-0583 and by funds of KEGA project KEGA 005TU Z-4/2020.

Conflicts of Interest: The authors of the article declare that they have no conflict of interest. The sponsors had no role in the design, execution, interpretation, or writing of the study.

References

1. Wile, I.S. Sociological aspects of housing. *Am. J. Public Heath* **1920**, *10*, 327–331. [CrossRef] [PubMed]
2. Woolley, T.; Porritt, J. *Natural Building, a Guide to Materials and Techniques*; The Crowood Press: Marlborough, UK, 2006.
3. Almusaed, A.; Almssad, A. Building materials in eco-energy houses from Iraq and Iran. *Case Stud. Constr. Mater.* **2015**, *1*, 42–54. [CrossRef]
4. Cooper, I. Cultural and Social Aspects of Sustainable Architectures. *Build. Res. Inf.* **2006**, *34*, 82–86. [CrossRef]
5. Jansen, S.J.T. The Impact of the Have-Want Discrepancy on Residential Satisfaction. *J. Environ. Psychol.* **2014**, *40*, 26–38. [CrossRef]
6. Broto, E. *Bamboo Design Guide & 59 Case Study*; Leading International Key Services Barcelona: Barcelona, Spain, 2015. Available online: https://ollernool.firebaseapp.com/ (accessed on 11 April 2020).
7. Slovak technical standard EN 1996-1-1+A1. *Eurocode 6. Design of Masonry Structures*; Slovak Office of Standards, Metrology and Testing: Bratislava, Slovakia, 2006.
8. Potkány, M.; Škultétyová, M. Research into customer preferences of potential buyers of simple wood-based houses for the purpose of using the target costing. *Open Eng.* **2019**, *9*, 390–396. [CrossRef]
9. Kočner, M.; Šabíková, I.; Čiernik, A. The importance of the Green economy in the context of Green growth. *Econ. Agric.* **2015**, *15*, 89–102.
10. Regec, J. Význam drevospracujúceho priemyslu pre národné hospodárstvo. *Drevársky Magazín* **2017**, *18*, 3. Available online: https://en.calameo.com/read/00596147122758a28e2fe (accessed on 15 April 2020).
11. Potkány, M.; Hitka, M.; Lorincová, S.; Krajčírová, L.; Štarchoň, P. Use of variators in applying the cost calculation methodology in small and medium furniture enterprises based on changes in human body dimensions. *Drvna Industrija* **2019**, *70*, 29–35. [CrossRef]
12. Lorincová, S.; Stachová, K.; Stacho, Z.; Joniaková, Z.; Blštáková, J.; Lipoldová, M.; Hitka, M. Defining the differences in corporate culture in wood-processing and forest enterprises. *BioRes* **2020**, *15*, 3320–3343. [CrossRef]
13. Langová, N.; Réh, R.; Igaz, R.; Krišťák, Ľ.; Hitka, M.; Joščák, P. Construction of wood-based lamella for increased load on seating furniture. *Forests* **2019**, *10*, 525. [CrossRef]
14. Jonaitis, V.; Naimavičiene, J. Social and Regional Aspects of Housing Situation in Lithuania. *Int. J. Strateg. Prop. Manag.* **2004**, *8*, 231–239. [CrossRef]

15. Habib, F.; Khastoo, M. An analytical approach to the impact of urban physical aspects on culture and behavior. *Int. J. Arch. Urban Dev.* **2014**, *4*, 17–24. Available online: http://journals.srbiau.ac.ir/article_2495_5a180794a1b97bd8ead5fea996a1c515.pdf (accessed on 15 April 2020).
16. Laluha, I.; Ošková, S.; Stanek, V. Kvalita života, sociálne nerovnosti a diferenciácia obyvateľstva. *Sociológia* **2005**, *37*, 119–142.
17. Hegedüs, J.; Teller, N.; Eszenyi, O. Explaining Households' Economic Hardship—An Interplay of Demography and Housing System. Available online: https://www.birmingham.ac.uk/Documents/ (accessed on 11 April 2020).
18. Afsoon, M.; Habib, F. Explaining the role of cultural, social and economic factors on quality of residence in urban neighborhoods: A case study of Kerman. *J. Geogr. Reg. Plan.* **2016**, *9*, 59–69. [CrossRef]
19. Rhee, P. Beyond Green: Environmental Building Technologies for Social and Economic Equity. *Archit. Des.* **2018**, *88*, 94–101. [CrossRef]
20. Adamuščin, A. Economic benefits of green building and certificates for sustainable construction. *Nehnuteľnosti A Bývanie* **2012**, *1*, 15–26.
21. Sturgill, B.; Giedeman, D.C. Factor shares, economic growth, and the industrial revolution. *Essays Econ. Bus. Hist.* **2016**, *34*, 165–207. Available online: https://dialnet.unirioja.es/articulo?codigo=5698347 (accessed on 15 April 2020).
22. Havířová, Z. *Dům ze Dřeva*; ERA Group: Brno, Czech Republic, 2005. Available online: https://books.google.sk/ (accessed on 11 April 2020).
23. Vařeka, J.; Frolec, V. *Lidová Architektura*; Grada: Praha, Czech Republic, 2007. Available online: https://books.google.sk/ (accessed on 11 April 2020).
24. Dvořáková, V. *Ľudová Architektúra*; DAJAMA: Bratislava, Slovakia, 2008.
25. Havlík, J. Konštrukčné typy drevostavieb. *Dom a Byt* **2013**, *19*, 97–98.
26. Fewins, C. The Pross and Cons of Different Construction Systems. Available online: http://www.cyprus-property-buyers.com/files/constructionmethods.pdf (accessed on 10 November 2019).
27. Hodkova, J. *Environmental Parameters of Building Materials and Structures—Data Uncertainties*; VUT Brno Fakulta Stavební: Brno, Czech Republic, 2009. Available online: http://www.cesb.cz/ (accessed on 11 April 2020).
28. Vonka, M. *Environmental Impact Assessment of Buildings*; Civil Engineering Faculty: Prague, Czech Republic, 2010.
29. Michalová, V. Obchodné služby ako determinant rastu a konkurencieschopnosti ekonomiky. *Ekon. Časopis* **2010**, *58*, 30–44. Available online: https://www.sav.sk/journals/ (accessed on 10 March 2020).
30. Ducká, K. Slovensko si Vlani Pozrelo Rekordný Počet Turistov. Available online: http://www.statistika/cestovny_ruch_SR_2016 (accessed on 15 April 2020).
31. Cruz Noia, P.R. Social aspects of Green Technology—Bamboo Construction Cases. Available online: https://umanitoba.ca/faculties/NOCMAT_2015.pdf (accessed on 11 April 2020).
32. Hontus, A. Building a house—Between traditional materials and patented organic materials. *Ser. Manažment Econ. Eng. Agric. Rural Dev.* **2015**, *15*, 167–172.
33. Zimmer, A.T.; Ha, H. People Planet and Profit: Unintended Consequences of Legacy Building Materials. *J. Environ. Manag.* **2017**, *204*, 472–485. [CrossRef] [PubMed]
34. Rivers, M. Brick vs Wood: The Pros and Cons of Building Materials. *Homebuilding Renov.* **2015**, *15*, 32–36.
35. Motyková, A. V drevodome dobre, v drevodome zdravo. *Pek. Bývanie* **2012**, *14*, 86–91.
36. Zhao, Z.Y.; Zhao, X.J.; Davidson, K.; Zuo, Y. A Corporate Social Responsibility Indicator System for Construction Enterprises. *J. Clean. Prod.* **2012**, *29–30*, 277–289. [CrossRef]
37. Botík, J. *Ľudová Architektúra a Urbanizmus Vidieckych Sídiel na Slovensku*; Academic Electronic Press: Bratislava, Slovakia, 1998. Available online: https://books.google.sk/ (accessed on 10 March 2020).
38. Čaplovičová, Z.; Langer, J.; Huba, P. *Múzeum Oravskej Dediny. Sprievodca po Expozícii*; Osveta pre Oravské múzeum v Dolnom Kubíne: Martin, Slovakia, 1990.
39. Huba, P. *Orava v Časoch Minulých I Prítomných*; Janka Hubová: Dolný Kubín, Slovakia, 2000.
40. Thurzo, I. *Ľudová Architektúra na Slovensku*; Vydavateľstvo PT: Bratislava, Slovakia, 2004.
41. European Union. Climate Change: What the EU is Doing. Available online: https://www.consilium.europa.eu/en/policies/climate-change/ (accessed on 11 April 2020).
42. Albino, V.; Berardi, U. Green buildings and organizational changes in Italian case studies. *Bus. Strat. Environ.* **2012**, *21*, 387–400. [CrossRef]
43. Khasreen, M.M.; Banfill, P.F.G.; Menzies, G.F. Life-cycle assessment and the environmental impact of buildings: A review. *Sustainability* **2009**, *1*, 674–701. [CrossRef]

44. Kolb, J. *Dřevostavby*, 3rd ed.; Grada: Prague, Czech Republic, 2011. Available online: https://books.google.sk/books (accessed on 15 April 2020).
45. Štefko, J. Multikomfortné Stavby z Dreva. Available online: https://www.isover.sk/sites/isover.sk/files.pdf (accessed on 11 April 2020).
46. Kaščáková, A.; Nedelová, G. Dotazníkový prieskum II—Overovanie hypotéz. *Forum Stat. Slovacum Ved. Recenzovaný Časopis Slov. Štatistickej A Demogr. Spoločnosti* **2014**, *10*, 109–114.
47. Rimarčík, M. *Štatistika Pre Prax*; Marián Rimarčík: Bratislava, Slovakia, 2007.
48. Kanderová, M.; Úradníček, V. *Kvantitatívne Metódy vo Finančnom Riadení Firmy I*; Fakulta Financií UMB: Banská Bystrica, Slovakia, 2010.
49. Pacáková, V. *Štatistické Metódy pre Ekonómov*; Wolters Kluwer: Bratislava, Slovakia, 2009.
50. Litavcová, E. *Štatistika s Balíkmi STATISTICA a SPSS*; Bookman: Prešov, Slovakia, 2012.
51. Scheer, Ľ.; Sedmák, R.; Šmelko, Š.; Marušák, R.; Fabrika, M. *Biometria*, 2nd ed.; Technická Univerzita vo Zvolene, Lesnícka fakulta: Zvolen, Slovakia, 2014.
52. Markechová, D.; Stehlíková, B.; Tirpáková, A. *Štatistické Metódy a Ich Aplikácie*; Univerzita Konštantína Filozofa, Fakulta prírodných vied: Nitra, Slovakia, 2011.
53. De Lotto, R. Assessment of Development and Regeneration Urban Projects: Cultural and Operational Implications in Metropolization Context. *Int. J. Energy Environ.* **2008**, *2*, 24–35.
54. Grešák, J. Drevenice—Významné Prvky ľudovej Architektúry. Available online: http://www.drevenice.sk (accessed on 10 March 2020).
55. Ministry of Agriculture and Rural Development of the Slovak Republic. Systematická Podpora Spracovania Dreva na Slovensku a Zamestnanosti na Vidieku Prostredníctvom Dotácie pre Občanov na Výstavbu Energeticky úsporných Drevodomov. Available online: http://www.mpsr.sk/index.php?navID=1&id=11984 (accessed on 22 December 2019).
56. Statistical Office of the Slovak Republic. Our Regions 2019. Available online: https://slovak.statistics.sk/wps/portal/!ut/ (accessed on 11 April 2020).
57. Fábri, Ľ. Drevostavby oslovujú najmä rozhľadených mladých ľudí. *Môj Dom* **2016**, *6*, 23–27. Available online: https://www.jaga.sk/portfolio/moj-dom-092016/ (accessed on 10 March 2020).
58. Jarina, I. Drevostavby na Slovensku. Available online: http://www.jarina.sk/pdf/publikacie.pdf (accessed on 11 April 2020).
59. Office of Labour, Social Affairs and Family. Current Problems on the Slovak Labor Market. Available online: https://www.upsvr.gov.sk/ (accessed on 8 November 2019).
60. Dvořáková, V. *Svetové Kultúrne Dedičstvo UNESCO*; DAJAMA: Bratislava, Slovakia, 2009.
61. Šebek, O. Drevostavby na Slovensku. Available online: https://atrium/drevostavby_naSR/pdf (accessed on 11 April 2020).
62. Štefko, J. *Moderné Drevodomy*; ANTAR: Bratislava, Slovakia, 2015.
63. Kuzma, B. Rodinné Drevodomy. Available online: http://www.fordom.sk/ (accessed on 11 April 2020).
64. Jochim, S.; Štefko, J.; Veselovský, J. *Stavebnostolárske Výrobky: Pre Drevené Stavebné Konštrukcie a Výrobky*; Technická Univerzita vo Zvolene: Zvolen, Slovakia, 2009.
65. Viluma, A. The situation with use of wood constructions in contemporary Latvian architecture. *Moksl. Liet. Ateitis* **2017**, *9*, 124–138. [CrossRef]
66. Jochim, S.; Štefko, J. Drevostavby a spotreba energie. *Dom a byt.* **2005**, *3*, 14–17.
67. Jochim, S. Drevostavby a životnosť—Poruchy, chyby, rekonštrukcia. *Stavebné Materiály.* **2012**, *6*, 36–39. Available online: https://www.asb.sk/architektura/rodinne-domy (accessed on 11 April 2020).
68. Hingston, P. *Efektívny Marketing*; IKAR: Bratislava, Slovakia, 2002. Available online: https://books.google.sk (accessed on 10 March 2020).
69. Aliová, M. *Efektívny Marketing*; Slovart CZ: Prague, Czech Republic, 2003.
70. Juščius, V.; Labanauskajtė, D.; Baranskajtė, E. The evaluation of online marketing channels efficiency. *Reg. Form. Dev. Stud.* **2016**, *19*, 44–53. Available online: http://dx.doi.org/10.15181/rfds.v19i2.1282 (accessed on 15 April 2020).