Social and economic impact of the COVID-19 pandemic at local level. A quantitative study

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Κοινωνικός και οικονομικός αντίκτυπος της πανδημίας COVID-19 σε τοπικό επίπεδο. Μια ποσοτική μελέτη

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ABSTRACT

This study investigates the socio-economic impact of the COVID-19 pandemic on the residents of a municipality in the Region of Central Macedonia in Greece. Conducted during 2021-2022, the field research focused on how the citizens perceive, approach, and evaluate their socio-economic situation (quality of life), access to health and social services, facilities for persons with disabilities, environmental challenges, and other factors, in light of the effects of the recent financial and health crises. To achieve this, a customised questionnaire was developed, a telephone-based opinion survey was conducted, and responses from a sample of about 3000 residents were collected and analysed.

KEY WORDS: CCOVID-19 Impact, Social Inclusion, Economic Resilience, Social Cohesion, Persons with Disabilities, Local Development, Opinion Research.

ΠΕΡΙΛΗΨΗ

Η παρούσα μελέτη εξετάζει τον κοινωνικοοικονομικό αντίκτυπο της πανδημίας COVID-19 στους κατοίκους ενός δήμου στην Περιφέρεια της Κεντρικής Μακεδονίας στην Ελλάδα. Η έρευνα πεδίου πραγματοποιήθηκε την χρονική περίοδο 2021-2022 και επικεντρώθηκε στον τρόπο με τον οποίο οι πολίτες αντιλαμβάνονται, προσεγγίζουν και αξιολογούν την κοινωνικοοικονομική τους κατάσταση (ποιότητα ζωής), την πρόσβασή σε υπηρεσίες υγείας και κοινωνικές υπηρεσίες, τις υποδομές για τα άτομα με αναπηρία, τις περιβαλλοντικές προκλήσεις και άλλους παράγοντες, δεδομένου των επιπτώσεων της πρόσφατης οικονομικής και υγειονομικής κρίσης. Για τους σκοπούς αυτούς, εκπονήθηκε ειδικό ερωτηματολόγιο, διεξήχθη τηλεφωνική έρευνα κοινής γνώμης και συγκεντρώθηκαν και αναλύθηκαν απαντήσεις από ένα δείγμα περίπου 3000 κατοίκων.

ΛΕΞΕΙΣ-ΚΛΕΙΔΙΑ: Επιπτώσεις της COVID-19, Κοινωνική Ένταξη, Οικονομική Ανθεκτικότητα, Κοινωνική Συνοχή, Τοπική Ανάπτυξη, Έρευνα Κοινής Γνώμης.

1. Introduction

The COVID-19 pandemic had profound and far-reaching effects on both social and economic life across the globe. Its impact touched nearly every aspect of society, from daily routines to global economies. Nicola et al. (2020) observed diminished workforce across all economic sectors, stagnation in development, scarcity in commodities and manufactured goods but also higher demand in the food industry and medical supplies. They summarised COVID-19's socioeconomic consequences on specific sectors of the international economy (primary sectors, secondary sectors, tertiary sectors, quaternary sector), cited the response measures of the EU, US and UK authorities, and concluded in the necessity of relief measures and resilient governmental leadership. Delardas et al. (2022) reaching similar conclusions in their research, noted reduced productivity and material shortages, supply disruptions but also their findings pointed to intensive innovative activity and novel ways of working in order to boost financial resilience. In their model, Martin et al. (2020) state the importance of governmental financial aids on restraining poverty rate increases and maintaining the standards of social welfare. This was also supported by Almeida et al. (2021) in their assessment of the fiscal policy measures on household's disposable income in the EU, mentioning that policy interventions can help mitigate the pandemics' impact on inequality and poverty. Moreover, Baptista et al. (2021) supported that stimulus interventions proved to be crucial in order to effectively manage social implications such as tackling poverty in the EU, supporting social inclusion of vulnerable social groups and reducing inequalities. Another dimension worth mentioning is the findings of Flor et al. (2022) that observed gender disparities in health, social, and economic aspects. The issued travelling restrictions and general lockdowns in the pandemic period, although deemed necessary for the public health by the experts, caused severe disruptions in many economic sectors. This was especially true in Greece, where tourism represents one of the country's most important economic sectors, the imposed restrictions created fears for much greater economic recession compared to the earlier economic crises (Vouloutidou et al., 2021). Vouloutidou et al. (2021) also noted the importance of financial relief measures coming from government financial aid to ease the economic repercussions to the median household income.

On a different note, Agrawal et al. (2020) have highlighted the effects of COVID-19 on the professional skills and requirements of employees. Specifically, it is described the necessity to build up critical workforce capabilities in different levels of employment (managers, associates, workers, etc.) to ensure the resilience of organisations. Similar findings from Li (2022), show that providing all individuals with opportunity to obtain new skills is prerequisite in order to create and maintain stronger, more equitable and inclusive economies and communities. The importance of upskilling and continuous training, as means of social cohesion and prosperity within the community, is also supported in the work of Skamnakis & Kostas (2020) drawing attention to the urgency of formulating techniques of life-long education as the central focus for further development and life-long employee development is presented as a new approach to social policy.

The social and economic impacts of the pandemic can be briefly summarised, based on the above cited works, as follows (Agrawal et al., 2020; Martin et al., 2020; Nicola et al., 2020; Almeida et al., 2021; Baptista et al., 2021; Vouloutidou et al., 2021; Delardas et al., 2022; Flor et al., 2022): a) Changes in Social Interactions: social distancing, quarantines and lockdowns, virtual connections; b) Mental Health Effects: anxiety and stress, loneliness, grief; c) Educational Disruption: school closures, educational inequality, impact on young people; d) Changes in Work Culture: remote work, workplace health and safety, job insecurity; e) Global Economic Downturn: supply chain disruptions, unemployment, recession; f) Changes in Consumer Behaviour: impact

on small businesses, changes in spending, shift to e-commerce; g) Government Responses and Economic Stimulus: monetary policy, fiscal stimulus; h) Long-Term Economic Shifts: digital transformation, reshaping global trade, inequality and poverty, financial market volatility.

Survey researchers have debated the fundamental idea of public opinion and its connection to mass survey data since the beginning of the scientific study of public opinion (e.g., Bryce, 1888; Park, 1972; Habermas, 1989). Opinion research is the process of collecting, analysing, and interpreting sample data about people's opinions, beliefs, attitudes, and preferences on various topics. A sample that is carefully constructed could provide a realistic representation of the total population (Gallup, 1948). The selection of polling and opinion survey techniques have to be conducted appropriately and in a strong correlation with the current trends of society in order to provide reliable data for decision making (Osborne & Rose, 2003). Traditional survey research may become less important in the new era of public opinion research. The socio-political environment in which public opinion researchers work is evolving due to the widespread use of new technologies like social media and mobile devices (Murphy et al., 2014).

In the current study, the opinion research survey was carried out using a quantitative research method, which took into account all the required conditions to ensure a smooth conduct and safeguard the processing of its results. According to Lampiri-Dimaki & Papachristou (1995); Lazos (1998); Kiriazi (2001); Paraskevopoulou-Kollia (2008); Wolf et al. (2016); Babbie (2018); Sakellaropoulos (2019), quantitative research methods (particularly in social sciences), analyse the number and quantity of occurrence of the object (phenomenon) under consideration, include precise measurements and strict control of variables aiming to collect data through recording to mainly extract data statistics. Quantitative research is a highly effective method for describing and examining objective characteristics of the population under study, as well as gathering accurate and valid data that leads to findings and conclusions. Furthermore, quantitative research operates within a predetermined and strict framework, with limited flexibility for alterations once the research has commenced. This quantitative research was conducted using a standardised questionnaire, enabling the researchers to reach a substantial portion of the population, ensuring the effectiveness of the study. The structured questionnaire was carefully designed, ensuring that it was concise with small, closed-ended questions, that the correlation between the questions and the overall context of the research was clear, that the flow and sequence were maintained smoothly, that the questions were phrased simply and clearly for full understanding, that double-barreled and leading questions, which could result in incorrect answers, were avoided, and that no questions requiring high specialised knowledge were included, nor any questions that could put the respondents in an uncomfortable position. The closed-ended questions were paired with predetermined answer options, allowing the respondent to select the one that best reflected their situation and opinion.

The pilot research, conducted to identify and rectify potential errors, played a vital role in its ultimate success. During this step, ambiguities, confusing terms, difficulties picking answers, a lack of expertise about the research topics, difficulty understanding the questions, and other concerns were discovered. Consequently, the use of this unique quantitative research approach, combined with the thoughtfully designed questionnaire, ensured maximum impartiality, validity, and reliability of responses, contributing significantly to the success of this study.

The Field research (opinion research survey) was conducted during 2021-2022 to examine the opinions and views of the residents of a municipality in the Region of Central Macedonia, Greece, on how they perceive, approach, and evaluate their socio-economic situation in light of the effects of the recent financial and health crises (quality of life, access to social and health

services, environmental issues, criminality, culture, civilisation, volunteering, etc.). Beyond the basic indicators, citizens' perspectives are particularly important, as significant changes occurred in society, the national economy, and local economies over the twelve-year period from 2010 to 2021. The findings can serve as a valuable tool for authorities to support decision-making and improve their related policies.

The study included analysis and correlation to the living space in the examined area of responses regarding quality of life, access to social and health services, facilities for Persons with Disabilities (PwD), environmental issues, criminality, culture, volunteering, etc. Data analysis and research findings highlighted significant factors and parameters affecting the community, alongside insights into the perspectives of residents across diverse social and economic backgrounds. These results could serve as a guide for the development of targeted policies by local and regional authorities.

The study area was a municipality in the Region of Central Macedonia in Greece, and the data collection period lasted in the years 2021-2022. The sample was 2998 inhabitants (91,9% living in urban areas and the remainder in suburban areas/villages), which included 65,9% females and 34,1% males. The inhabitants in poverty risk were 1884 (62,8%), the disabled inhabitants were 383 inhabitants (12,8%), the migrants/refugees were 34 inhabitants (1,1%) and the drug users (current, ex) were 28 inhabitants (0,9%).

According to the EUROSTAT glossary with the term AROPE - "at risk of poverty or social exclusion" (European Union, n.d.), we are referring to the aggregate of individuals who are either at risk of poverty, highly materially and socially disadvantaged, or residing in a home with extremely low labour intensity. In Greece, the financial criteria, on an annual basis, in order for someone to be considered "at risk of poverty" must not exceed the amount of €4.917 (for individuals) and €10.326 (for a household of two adults and two dependents). Based on the statistics provided from the Hellenic Statistical Authority (ELSTAT), the percentage of those meeting the financial criteria corresponds to 17,9% of the Greek population (in the ELSTAT data, the income includes allowances and other social benefits, which were probably not taken into account by the participants in their answers). The aforementioned data reveal a significant discrepancy, which may be explained by the participants' reluctance to answer some more personal questions (being even worried about potential telephone fraud), the fact that a high percentage of respondents were not employed and answered from home (non-work), and the age of the distribution of the sample, predominantly between 65 and 79 years of age. The interpretation is further supported by the corresponding correlation between high unemployment rates and elevated poverty rates.

2. Research Methodology

2.1 Basic elements of methodology - variables

The sample of 3.000 respondents is sufficiently high for a population between 25.000 and 80.000 people, as the minimum acceptable sample size for confidence level of 95% and error margin of 5%, is 394 and 398 respectively, with regards to applying the method of Yamane (1967) as referred by Israel (2013), and Osahon & Kingsley (2016). Similarly, for the improved margin of error being set at 3%, the minimum acceptable sample size is between 1.064 and 1.096 respondents respectively.

The initial collection design involved fieldwork with questionnaire-based personal interviews. Owing to the restrictive measures imposed to contain the spread of the COVID-19 pandemic, in-person data collection was not permitted in 2021, and it was decided to conduct the

research by phone and online. The collected data were entered to a database, were assessed and analysed for a range of parameters using a spreadsheet (EXCEL) and statistical analysis software (PSPP), and high-risk conclusion assessment controls were identified.

The variables measured included: 1. the sex; 2. the age; 3. the marital status (single/living with parents, single/living alone, married/living with family, divorced, other); 4. the children (minors, adults and minors, adults, adult dependents, none); 5. the educational level (illiterate, elementary school, secondary school, technical school, institutes of vocational training, university, MSc, Ph.D.); 6. the residence (rent, property, hosting); 7. the area of residence and city/village and municipal unit; 8. Citizenship; 9. the employment (unemployed, self-employed, employed in the public/wider public sector, employed in the private sector, loss of previously held capacity, inactive/unable to work); 10. the form of employment [unemployed, informal (non-legal)], precarious, flexible (part-time, temporary, seasonal), inactive [(unable to work), formal (legal)]; 11. the employment sector (unemployed, primary, secondary, tertiary, other).

Moreover, other measurement variables were: 12. the income (individual, family) and annual amount of income (i. have no income, ii. up to €4.917, iii. €4.918 - €6.000, iv. €6.001 - €10.326, v. €10.327 - €20.000, vi. €20.001 - €40.000); 13. the disability (yes, no); 14. the existence of addiction (yes, no) and the type of addiction (none, smoking, alcohol, gambling, drugs, other); 15. the access to social / medical services (medical, social, both, none); 16. the participation in a volunteer club / group (yes, no), with what object (amateur sports, blood donation, culture, help to the needy, support for the disabled, help for immigrants, etc.); 17. the impact of COVID-19 on personal and family financial situation (negative, positive, not at all, very negative, very positive); 18. The impact of COVID-19 on personal and family social status (negative, positive, not at all, very negative, very positive); 19. the impact of COVID-19 in general on the economic situation in the society of the municipality (negative, positive, not at all, very negative, very positive); 20. the impact of COVID-19 in general on the social, cultural situation in the society of the municipality (negative, positive, not at all, very negative, very positive).

Furthermore, extra measurement variables were: 21. the level of criminality and safety in the municipality in general (very low, low, high, very high); 22. the level of criminality and safety in the municipality (Do you feel safe living in the Municipality? - very low, low, high, and very high); 23. the question: What affects crime? (Unemployment, unemployment due to COVID-19, unemployment-foreigners, lack of policing, etc.); 24. the question: What is your opinion about the environmental problems in the municipality? (very few, few, many, too many); 25. the question for list, if possible, the three most important environmental problems, ranking them from the most significant to the least significant; 26. the question: Are you experiencing any local issues where you live or work? (yes, no) and specialization in "Yes"; 27. the open question about the evaluation of the accessibility in urban infrastructure for Persons with Disabilities (PwD) in the municipality in general.
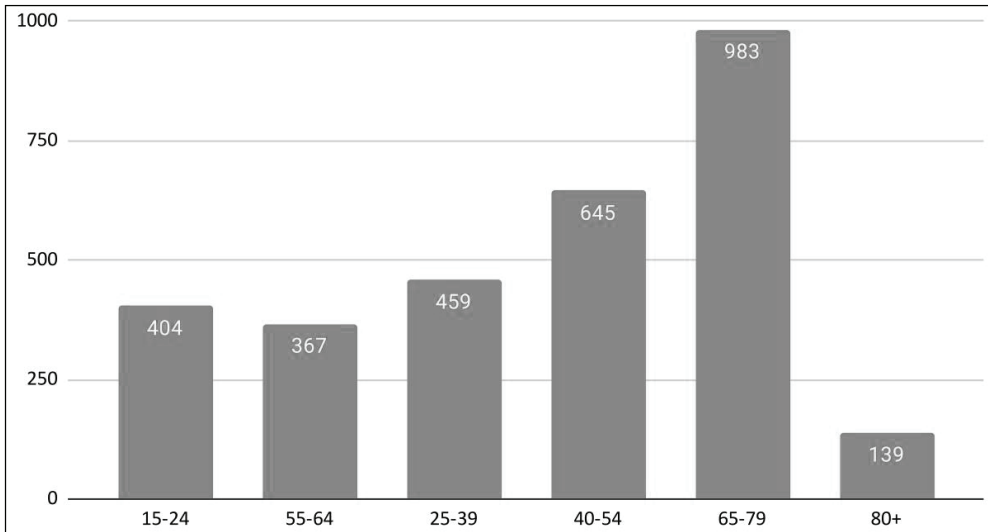
The final measurement variables included the following open-ended questions: 28. general issues of dependency on the municipality; 29. descriptive information about volunteering in the municipality; 30. descriptive data on quality of life, culture, and sports in the municipality; 31. general descriptive information about the immigration of third-country nationals to the municipality (categorised as A. Europe: e.g., AL, RUS, SRB, etc.; and B. non-European countries); 32. general descriptive information about social issues or problems in the municipality; 33. descriptive data on crime and citizens' sense of security in the municipality; 34. ideas for addressing the societal consequences of the COVID-19 pandemic in the municipality; 35. suggestions for addressing other potential societal issues in the municipality (beyond those related to COVID-19).

2.2 Research sample - demographics

For the purpose of this article, we present 15 selected parameters (1, 2, 3, 5, 7, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20) of the 35 measurable variables listed above, in the following graphs and tables.
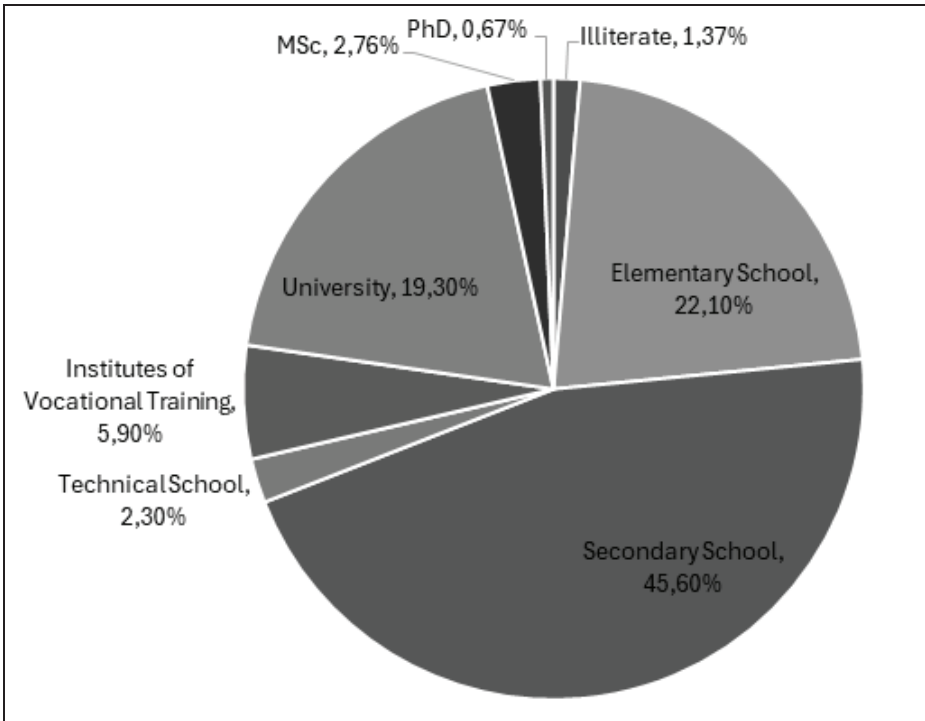
These parameters range from demographic data to the impact of the COVID-19 pandemic on the personal and family financial or social situations.

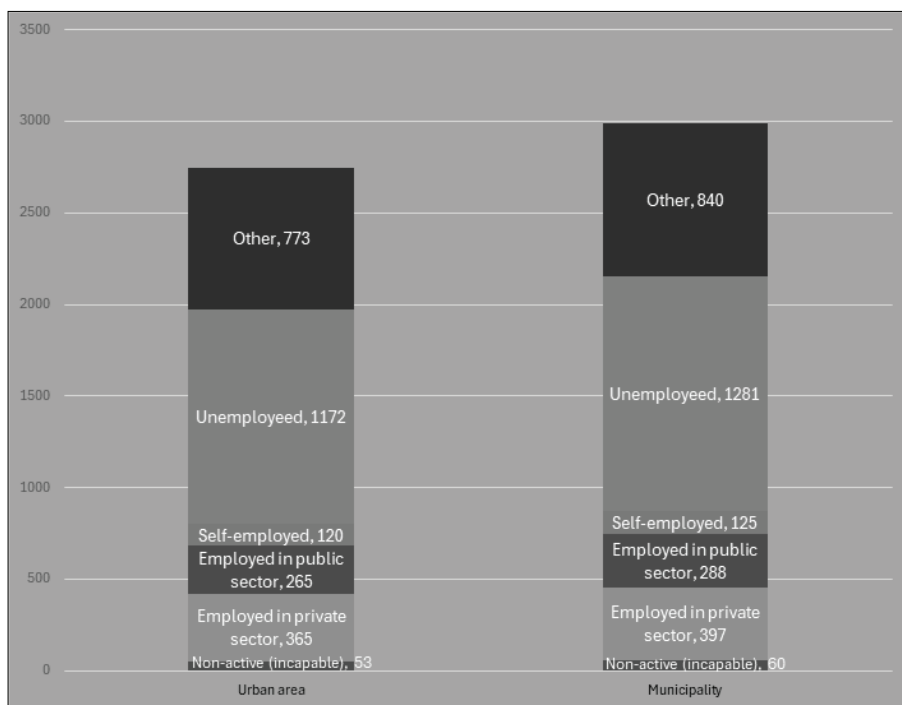### Graph 1. Demographic data of participants (Age)

Graph 1 illustrates the measurement variable 2, which represents the age distribution of the survey participants. The largest age group that was involved in our survey falls within the 65-79 age range, accounting for 32,8% of respondents. Moreover, participants aged over 40 comprise more than 70,0% of the total sample. This outcome is likely related to the fact that the survey was conducted primarily in the mornings through phone calls to households, which led to a higher response rate from older individuals. These respondents also demonstrated greater willingness to participate in the survey compared to other age groups, who exhibited higher refusal rates due to various factors, such as lack of time or unwillingness to engage.

Graph 2. Demographic data of participants (Education Level)

Graph 2 depicts measurement variable 5, which pertains to the educational level of the participants. In the sample, only 22,73% of respondents had attained higher educational degrees, including university qualifications and advanced degrees such as MBAs, MScs, and PhDs. Meanwhile, 67,70% had completed only compulsory education in Greece (primary and secondary school). Ninety-five percent of the respondents answered this question. The proportion of individuals with higher education levels in the sample is slightly lower than the OECD (2023) data, which reports that 34,56% of the population aged 24-65 hold a university degree or higher. This discrepancy can be attributed to the relatively high proportion of respondents over 65 years old, as enrolment rates in higher education were lower in previous decades compared to more recent ones. However, the correlation remains consistent. Additionally, the percentage of holders of higher education degrees was higher in the urban areas. Meanwhile, the percentage of individuals with secondary education aligns closely with the OECD (2023) findings at the national level (45%).

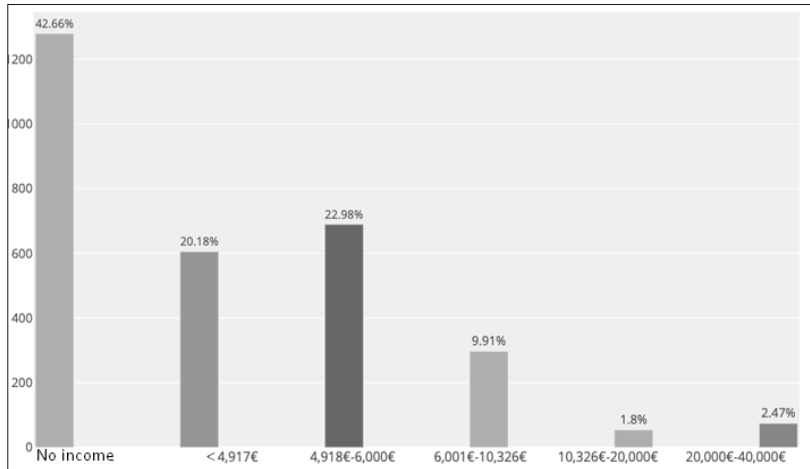## Graph 3. Demographic data of participants (Employability Status)

Graph 3 categorises respondents based on the area of residence (urban, municipality) and employment status. Among those residing in the municipality, 42,8% were categorised as "unemployed". The private sector shows 13,2%, the public sector 9,6%, and 28,0% is linked to "other".

The figure is higher than the average in Greece; however, it is explained due to the fact that many respondents were in temporary suspension or lost their job due to the crisis, while others were reluctant to answer the survey honestly, and the distribution of the sample also affected the outcome as employed individuals were at work during the morning survey calls.

The unemployment rate among individuals aged 40-54 was 19,47% higher than that of the 15-24 age group and 4,12% higher than the 55-64 age group. This discrepancy can be attributed to younger individuals more easily securing non-permanent jobs that typically do not require significant credentials, such as waiters, while those over 55 benefit from special employment programs offered by the Greek Public Employment Service. Furthermore, women experienced an unemployment rate 27,8% higher than that of men.
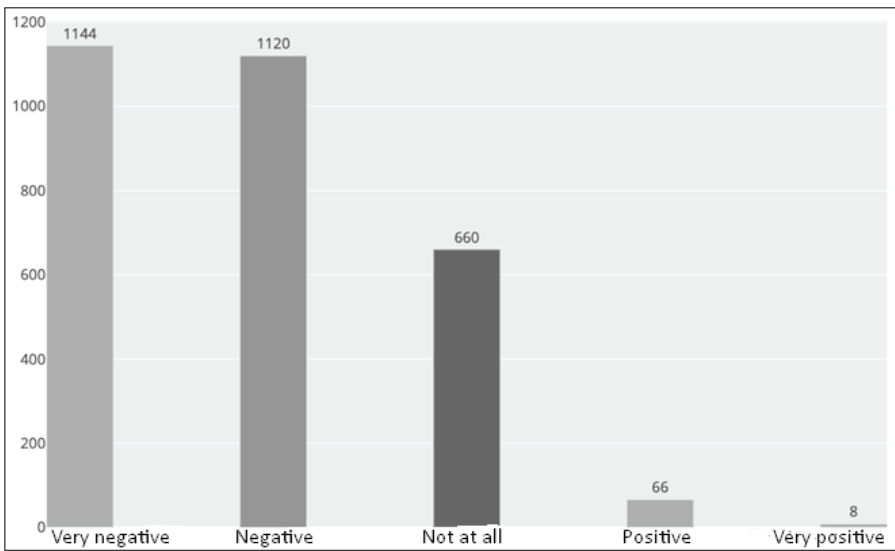
Graph 4. Income of the participants

According to the income data presented in Graph 4, 42,66% of participants reported "no income" at all. When combined with the percentage of those who reported "income below €4.917", then we have 62,84% of participants living at risk of poverty or social exclusion.

This outcome is closely linked to the effects of the COVID-19 pandemic, which resulted in job losses and reduced opportunities for seasonal employment due to limited business turnover. Additionally, some respondents may have chosen not to provide accurate answers - an issue commonly observed with personal questions during phone surveys, compared to those conducted in person or in public settings, where respondents may feel more secure providing detailed information.

Graph 5. Effects of COVID-19 on the financial status of the citizens

As shown in Graph 5, respondents were asked to describe the impact of the COVID-19 pandemic on the society of the municipality they reside in. An overwhelming majority, 75,52%, reported a negative impact, with 38,2% answering "very negative", and 37,3% "negative". In contrast, only 2,5% of respondents described the impact as "positive" or "very positive".

The described approach can be attributed to the fact that the outbreak of the COVID-19 pandemic triggered a public health emergency with severe socio-economic repercussions. Beyond its significant impact on vulnerable sectors of the economy, the pandemic also dealt a heavy blow to individual families. Many residents reported pre-existing survival challenges due to the economic crisis and the transition to the digital age, which were exacerbated by the new coronavirus. The necessary measures implemented to curb the spread of COVID-19, such as mandatory home confinement, led to a rapid decline in income for numerous families.

3. Research Findings

3.1 Findings - selected parameters

The tables below continue the presentation of selected measured variables and parameters. It is important to note that percentages are calculated based on the total of each category, and only main categories are presented; therefore, they do not sum to 100%. The total number of participants includes 2615 non-PwD (People without Disabilities/general population) and 383 PwD (Persons with Disabilities), accounting for 12,78% of the sample, which is fairly close to the national average of disabled people in Greece, where 10,2% report feeling significantly restricted in performing daily tasks, and 14,0% report experiencing moderate restrictions in carrying out such tasks (European Commission, 2022). Specifically, among the general population, there are 872 males and 1.743 females, while in the PwD group there are 150 males and 233 females. Among the PwD respondents, only 233 out of 383 (60,8%) reported having access to social benefits. This finding may reflect the general perception that such benefits are directly associated with expectations of financial support. Additionally, 28 participants, representing 0,9% of the total sample, reported being currently or formerly addicted to substances.

Table 1. Educational status of PwD compared to general population

Male+Female	Illiterate	Tertiary	MSc/MBA	phD
General Population	30 (1,1%)	482 (18,4%)	70 (2,7%)	17 (0,7%)
PwD	10 (2,6%)	63 (16,4%)	8 (2,1%)	2 (0,5%)

Table 1 presents the educational status of Persons with Disabilities (PwD) in comparison to the general population according to answers given by the respondents. Among PwD, 16,4% have completed some form of tertiary education (universities, colleges, technical training institutes, or vocational schools). Conversely, only 2,6% of PwD pursued advanced degrees (MScs, PhDs, etc.). These rates are comparable to those observed in the general population, indicating that educational attainment among PwD aligns closely with broader societal trends, despite potential barriers.

Among illiterate individuals, the rate of PwD is 136% higher than that of the general population. This significant disparity likely reflects the challenges faced by PwD with more severe health conditions, highlighting the critical need for targeted interventions to address educational barriers and promote literacy within this group.

Table 2. Existence of addiction/s in PwD compared to general population

Males+Females	Have some addiction/s
General Population	870 (33,3%)
PwD	131 (34,2%)

Another finding presented in Table 2 is the prevalence of addiction/s among PwD compared to the general population. The data show that 34,2% of PwD have noted some form of addiction (smoking, alcohol, gambling, drugs, etc.), a rate similar to that observed in the general population. This finding suggests that addiction is a pervasive issue, affecting individuals regardless of disability status. However, it is important to note that this was a sensitive topic for many respondents. Despite assurances regarding the protection of personal data, some participants may have been hesitant to provide detailed or accurate answers, likely due to stigma or discomfort associated with discussing personal issues such as addiction. This reluctance may have resulted in underreporting, suggesting that the actual prevalence of addiction could be higher than reported.

Table 3. Income status of PwD in comparison to general population

Males+Females	No Income	< 4.917€	4.918€ - 10.326€	10.327€ - 20.000€	20.001€ - 40.000€
General Population	1.116 (42,7%)	532 (20,3%)	858 (32,8%)	44 (1,7%)	65 (2,5%)
PwD	163 (42,6%)	73 (19,1%)	128 (33,4%)	10 (2,6%)	9 (2,3%)

The income indicators presented in Table 3 represent a critical parameter of the sample, revealing that 61,7% of PwD are living at risk of poverty or social exclusion. Comparable findings are observed in the general population, with 63,0% of the respondents reporting financial vulnerability.

These results highlight the pervasive economic challenges faced by both PwD and the general population. For PwD, limited access to stable employment and additional costs related to healthcare or accessibility needs likely contribute to their financial insecurity. Similarly, the elevated risk of poverty among the general population reflects broader socio-economic challenges, potentially exacerbated by the aftermath of the COVID-19 pandemic, including job losses, reduced income opportunities, and economic instability. These findings underscore the need for targeted policy interventions to address systemic financial inequities and promote social inclusion. Recognising that disability does not equate to incapability for work, such an approach could significantly contribute to local development. By increasing the workforce available to the market, it would likely add value to local enterprises and organisations, both through direct labour contributions and enhanced social corporate responsibility policies. This, in turn, could lead to a higher local GDP (Gross Domestic Product) driven by increased consumption. Moreover, family members of PwD, who belong to the general population, would benefit from more opportunities for work and other activities due to the increased availability of personal time.

Table 4. Marital and living status of PwD in comparison to general population

Males+Females	Divorced	Single / Living alone	Single / Living with parents	Married
General Population	462 (17,7%)	429 (16,4%)	76 (2,9%)	1.529 (58,5%)
PwD	80 (20,9%)	55 (14,4%)	13 (3,4%)	215 (56,1%)

Table 4 presents the marital status of PwD in comparison to the general population, including whether they live alone or with their parents. In the sample, 56,1% of PwD were reported to be married, and 38,7% were either divorced or single. Tables 5 and 6 provide a more detailed breakdown of this parameter, offering a gender-based comparison.

The relatively high percentage of married individuals (56,1%) among PwD indicates a level of social integration, suggesting that disability does not necessarily preclude marital relationships. The combined percentage of divorced or single individuals (38,7%) may reflect challenges PwD face in maintaining long-term relationships, potentially linked to the additional demands and stresses associated with disability. The findings, when compared to the general population, reveal minor differences. For instance, a slightly proportion higher of PwD are divorced or live with their parents compared to the general population. Conversely, fewer PwD live alone or are married, although these differences are also minimal.

While living alone may not be difficult for the general population, it has complications for PwD, thus, the 14,4% of them (living alone) is an important part and should be taken into consideration when designing related policies (i.e., provide benefits for independent living).

Table 5. Marital and living status of male PwD in comparison to the males of the general population

Males	Divorced	Single / Living alone or with parents	Married
General Population	140 (16,1%)	198 (22,7%)	498 (57,1%)
PwD	33 (22,0%)	27 (18,0%)	85 (56,7%)

Table 6. Marital and living status of female PwD in comparison to the females of the general population

Females	Divorced	Single / Living alone or with parents	Married
General Population	322 (18,5%)	307 (17,6%)	1031 (59,2%)
PwD	47 (20,2%)	41 (17,6%)	130 (55,8%)

Tables 5 and 6 reveal minor but noteworthy findings. In the general population, divorced women outnumber divorced men, whereas in the PwD group, divorced men are more prevalent than divorced women. Additionally, in the general population, the proportion of men who are single or living alone or with their parents is significantly higher than that of women. In contrast, within the PwD group, these rates are nearly equal across genders. Lastly, in both the general population and the PwD group, married men slightly outnumber married women.

The higher prevalence of divorced women in the general population aligns with broader societal trends, where women may initiate divorce more often. Conversely, the reverse trend observed in the PwD group, with more divorced men, may reflect the added pressures of caregiving responsibilities or challenges of maintaining partnerships when one partner has a disability.

The nearly equal rates of single or cohabiting men and women in the PwD group differ from the general population, where men are more likely to live alone or with parents. This could indicate a shift in traditional gender roles among PwD, perhaps due to shared reliance on family or external support systems.

Finally, the slightly higher proportion of married men in both groups may reflect traditional gender roles, where men are more likely to receive familial or societal support to sustain a marital relationship, even in the presence of disabilities. Women, by contrast, may demonstrate greater independence when required.

Table 7. Employment status and employment category of male PwD in comparison to the males of the general population

Males	Unemployed	Self-employed	Public Sector	Private Sector	Non active
General Population	312 (35,8%)	71 (8,1%)	97 (11,1%)	120 (13,8%)	40 (4,6%)
PwD	57 (38,0%)	13 (8,7%)	10 (6,7%)	9 (6,0%)	9 (6,0%)

Table 8. Employment status and employment category of female PwD in comparison to the females of the general population

Females	Unemployed	Self-employed	Public Sector	Private Sector	Non active
General Population	800 (45,9%)	34 (2,0%)	163 (9,4%)	238 (13,7%)	9 (0,5%)
PwD	112 (48,1%)	7 (3,0%)	18 (7,7%)	30 (12,9%)	2 (0,9%)

Tables 7 and 8 provide insights into employment status and employment categories by gender for Persons with Disabilities (PwD) and the general population. Among the male PwD population in the sample, 21,4% reported t being employed, whether in the private or public sector or as self-employed. In contrast, 44,0% identified as either unemployed or non active in the workforce.

For the female population of PwD, 49,0% have been recorded as either unemployed or non-active, while 23,6% reported some form of employment, including private sector, public sector, or self-employment.

Unemployment rates are notably higher among women compared to men, irrespective of population category. Additionally, self-employment is almost three times more common among men in the PwD group than among women. However, women in the PwD group are more likely than men to be employed in the private or public sector.
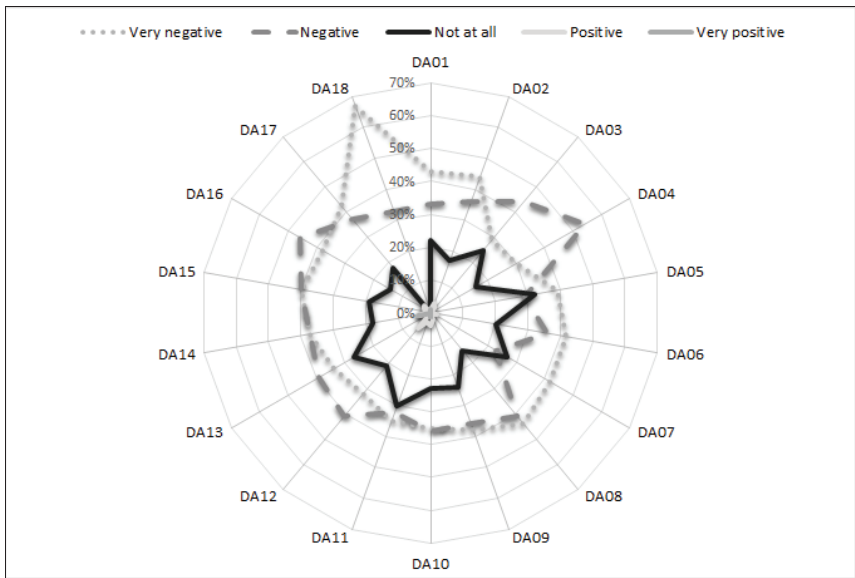
The higher unemployment rates among women with disabilities mirror general labour market trends, where women often face greater challenges in accessing employment, including caregiving responsibilities, social biases, or lack of opportunities. Similarly, the notable gap in self-employment rates suggests that men with disabilities may have greater access to resources, networks, or confidence to start and sustain their own businesses. The higher proportion of women working in the private or public sectors could indicate that women with disabilities are more likely to seek structured employment environments, possibly due to the stability and benefits these roles often provide.

These findings highlight the need (i) for targeted interventions to reduce unemployment among PwD, especially women, by providing access to training programs, flexible working conditions, and support for entrepreneurship, and (ii) encouraging self-employment opportunities for women with disabilities could help address the stark gender gap in this area. Further analysis could explore the barriers preventing women with disabilities from pursuing self-employment and the factors enabling men with disabilities to succeed in this area.

Table 9. Impact of the COVID-19 pandemic on the personal & family financial situation

Sub-area	Very negative	Negative	Not at all	Positive	Very positive	N/A	Sum
DA01	43%	33%	22%	1%	1%	0%	100%
DA02	44%	36%	17%	3%	0%	0%	100%
DA03	29%	44%	25%	2%	0%	0%	100%
DA04	30%	54%	16%	0%	0%	0%	100%
DA05	39%	29%	32%	0%	0%	0%	100%
DA06	42%	36%	20%	2%	0%	0%	100%
DA07	42%	23%	27%	0%	0%	8%	100%
DA08	44%	41%	15%	0%	0%	0%	100%
DA09	38%	36%	24%	2%	0%	0%	100%
DA10	35%	36%	23%	4%	1%	1%	100%
DA11	35%	32%	30%	3%	0%	0%	100%
DA12	32%	41%	21%	6%	0%	0%	100%
DA13	34%	39%	27%	0%	0%	0%	100%
DA14	37%	37%	18%	4%	4%	0%	100%
DA15	40%	40%	19%	1%	0%	0%	100%
DA16	38%	46%	14%	2%	0%	0%	100%
DA17	42%	37%	18%	3%	0%	0%	100%
DA18	67%	33%	0%	0%	0%	0%	100%

Graph 6. Impact of the COVID-19 pandemic on the personal & family financial situation

Graph 7. Impact of the COVID-19 pandemic on the personal & family financial situation (negative - very negative jointly; positive - very positive jointly)
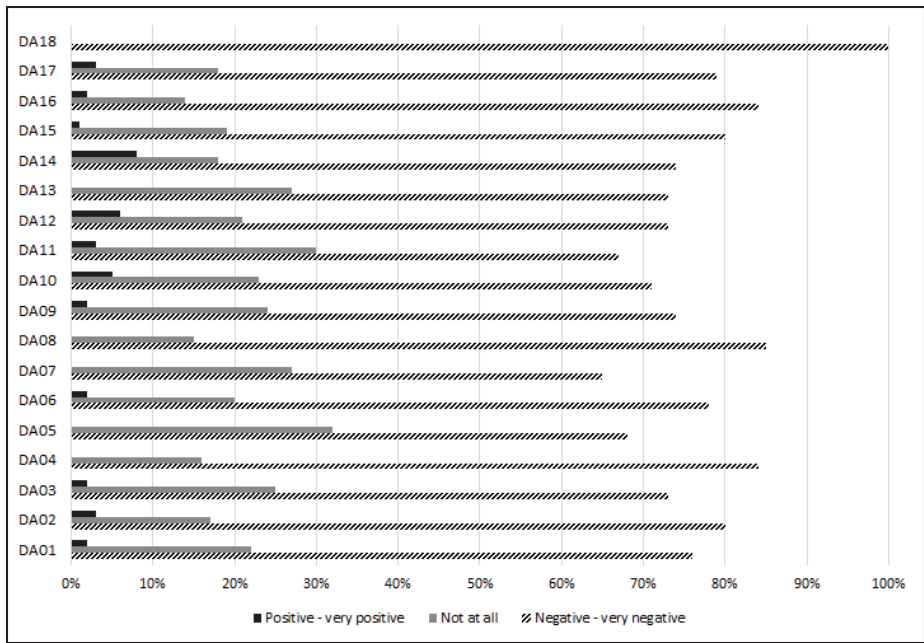
Table 9, along with Graphs 6 and 7, illustrate the impact of the COVID-19 pandemic on personal and family financial situations across different district areas (DA) within the municipality. Significant variations are evident between the areas, with notable disparities linked to the social and economic status of each district. Poorer families living in disadvantaged neighbourhoods reported feeling the negative financial impact of the pandemic more acutely compared to wealthier families residing in affluent areas.
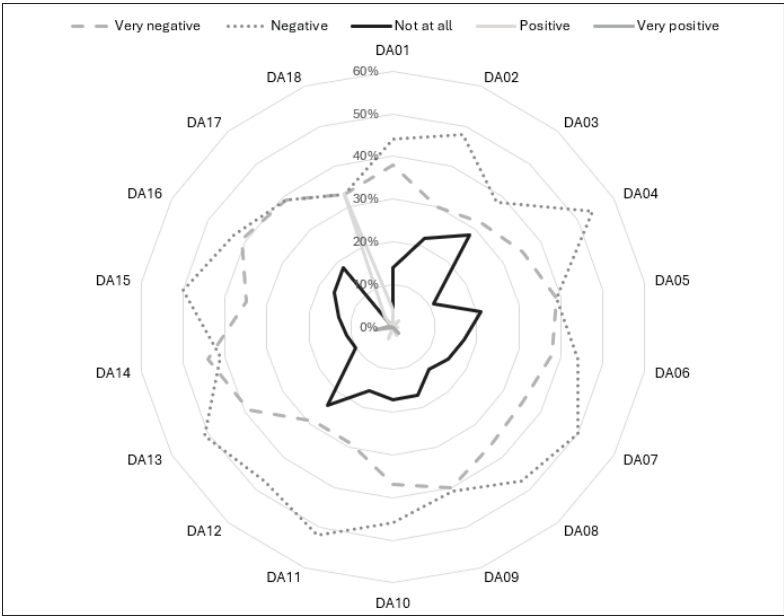
These findings highlight the uneven financial impact of the COVID-19 pandemic across the municipality, with poorer families in disadvantaged neighbourhoods experiencing more severe effects than wealthier families. This disparity can be attributed to pre-existing socio-economic inequalities, where low-income households often lack financial buffers, stable employment, or access to support systems that could mitigate the pandemic's economic challenges. Conversely, wealthier families typically have greater resources to withstand such disruptions, including savings, diversified income sources, and better access to remote work opportunities.

This trend underscores the critical role of social and economic structures in shaping community resilience during crises. It also emphasises the need for targeted policy measures to support vulnerable populations in disadvantaged areas.

Table 10. Impact of the COVID-19 pandemic on the personal & family social situation

Sub-area	Very negative	Negative	Not at all	Positive	Very positive	N/A	Sum
DA01	38%	44%	14%	4%	0%	0%	100%
DA02	30%	48%	22%	0%	0%	0%	100%
DA03	32%	38%	28%	2%	0%	0%	100%
DA04	35%	54%	11%	0%	0%	0%	100%
DA05	39%	39%	21%	0%	0%	1%	100%
DA06	38%	44%	17%	1%	0%	0%	100%
DA07	35%	50%	15%	0%	0%	0%	100%
DA08	36%	47%	13%	2%	2%	0%	100%
DA09	40%	41%	17%	2%	0%	0%	100%
DA10	37%	46%	17%	0%	0%	0%	100%
DA11	29%	52%	16%	3%	0%	0%	100%
DA12	29%	47%	24%	0%	0%	0%	100%
DA13	39%	51%	10%	0%	0%	0%	100%
DA14	44%	41%	11%	0%	4%	0%	100%
DA15	35%	50%	13%	0%	1%	1%	100%
DA16	41%	43%	16%	0%	0%	0%	100%
DA17	39%	39%	18%	3%	0%	1%	100%
DA18	33%	33%	0%	33%	0%	1%	100%

Graph 8. Impact of the COVID-19 pandemic on the personal & family social situation

Graph 9. Impact of the COVID-19 pandemic on the personal & family social situation (negative - very negative jointly; positive - very positive jointly)
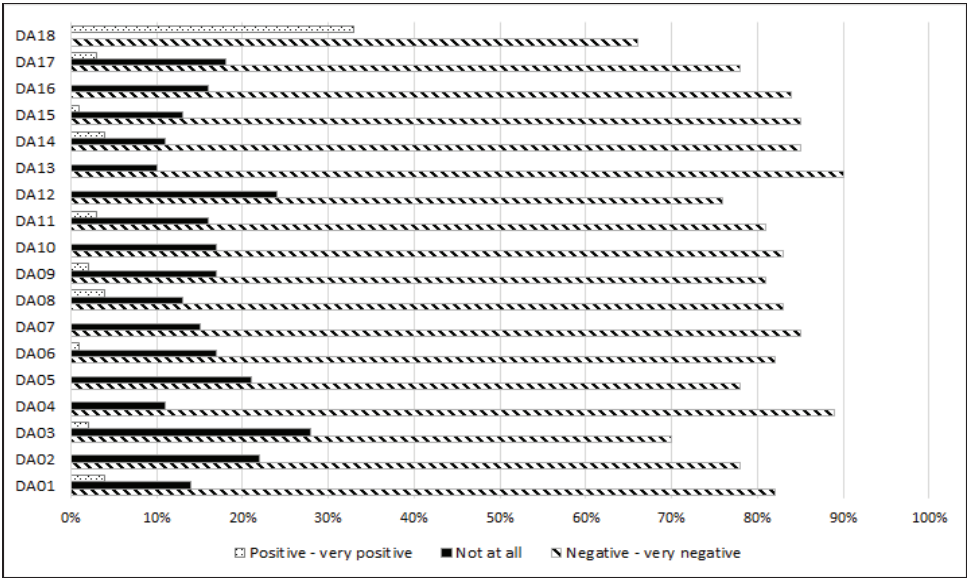
Table 10, along with Graphs 8 and 9, depicts the impact of the COVID-19 pandemic on the personal and family social conditions across various district areas (DAs) within the municipality. The data reveal significant differences between areas, with notable variations linked to the socio-economic status of each district. Families in economically disadvantaged neighbourhoods reported experiencing the negative social effects of the pandemic more intensely than those in affluent areas.

These findings underscores the unequal social impact of the COVID-19 pandemic across the municipality, with families in poorer neighbourhoods bearing a greater burden compared to those in wealthier areas. This disparity can be traced to existing socio-economic inequalities, as low-income households often lack sufficient resources, stable jobs, or access to support systems to cushion the pandemic's social and economic effects. In contrast, wealthier families are typically better equipped to handle such disruptions due to their access to savings, diversified income streams, and remote work opportunities.

This pattern highlights the vital influence of social and economic frameworks in determining community resilience during times of crisis and underscores the need for targeted policies to assist vulnerable groups in underserved areas.

3.2 Research limitations

The restrictions implemented to curb the spread of the novel coronavirus necessitated changes to the data collection method, shifting from in-person collection to telephone communications. This adjustment introduced challenges with certain queries, resulting in incomplete responses to some questions.

Completing the questionnaires posed structural difficulties in accurately and efficiently recording responses. Questions related to sensitive topics such as income or living arrangements (e.g., income, living alone or with family, etc.) created a sense of insecurity among respondents during the Q/A process. This discomfort led to some questions going unanswered or responses deviating partially from reality.

The data and findings thus reflect the perception and approaches of the respondents, constrained by the limitations and weaknesses of the modified collection method. Additionally, certain responses may reflect the current situation or mindset of the respondents more than an objective reality.

Consequently, while the findings may not fully represent the recorded reality for all questions, they offer valuable insights. These insights can serve as a useful tool for local and regional authorities, as well as other services, to enhance their policies and address community needs more effectively

4. Conclusion - Discussion

Public perceptions of social indicators frequently differ from officially recorded data, influenced by factors such as media and social networks. For instance, perceptions of crime rates or service quality may be negatively skewed and deviate significantly from official evaluations, such as recorded police offences. Addressing this gap requires effective communication strategies to align public perceptions more closely with reality.

Developing and implementing a dynamic and modern information plan could enhance the dissemination of accurate data related to these indicators. This would ensure that the public's understanding of social indicators better reflects objective realities, fostering informed opinions and reducing misinformation.

The COVID-19 pandemic exacerbated existing socio-economic inequalities across different district areas within the municipality. Families in disadvantaged neighbourhoods faced more severe financial and social impacts compared to their counterparts in affluent areas. This underscores the urgent need for policies aimed at reducing systemic inequalities and fostering economic resilience.

Persons with Disabilities (PwD) faced heightened challenges during the pandemic, with a significant proportion (61,7%) living at risk of poverty or social exclusion. Despite comparable educational attainment rates between PwD and the general population, disparities in employment opportunities and access to social benefits highlight critical areas requiring targeted interventions to promote inclusion and reduce barriers.

The findings indicate that women, particularly those with disabilities, experience notably higher unemployment rates compared to men. Moreover, the stark gender disparity in self-employment among PwD suggests the need for tailored programs to encourage and support entrepreneurial activities, particularly for women.

The data analysis and field research findings underscore significant shifts in socio-economic factors and parameters for the community as well as residents' perspectives on particular issues from a variety of social and economic backgrounds. The results offer a data-driven basis for targeted policy-making aimed at enhancing social inclusion, economic recovery, and community resilience, underscoring the pandemic's profound effects on local socio-economic structures. Thus, the results of this study can be a tool to support decision-making by the respective authorities and to improve their related policies, addressing employment, social benefits, and accessibility for PwD, coupled with targeted economic recovery programs, which could enhance social cohesion and mitigate long-term impacts.

Engaging residents in open discussions about local challenges -such as environmental issues, public infrastructure, and volunteering-, can yield innovative solutions. These collaborative efforts can be transformed into comprehensive strategies that enhance the quality of life and foster local development.

Beyond crime and violence, other agencies, such as Social Welfare Services, can similarly benefit from aligning public perception with official data, using hybrid models to integrate diverse data sources for effective decision-making.

Engaging the community in the collection and development of proposals for special topics (e.g., sport facilities, neighbourhood parks/pocket parks, synergies and collaboration between the Municipality and organisations of civil society, and innovative actions to support the local economy, etc.), can yield invaluable ideas. Open discussions can enrich these proposals, transforming them into comprehensive interventions to enhance the quality of life in the neighbourhoods.

Interventions, or surveys targeting specific population groups (e.g., Roma, immigrants, etc.), are practically impossible to be carried out (or with the minimum satisfaction and credible response) without the cooperation of a corresponding cultural mediator, who understands their mentality (and the language, if the case), their special traditions, and their general philosophy. Such mediators are essential for collecting credible responses and ensuring the successful implementation of research initiatives within these communities.

Finally, surveys involving personal data should ideally be conducted in person, in order to ensure their maximum possible validity. While telephone surveys (as in the case of the present surveys) were the only viable option due to pandemic-related restrictions, a combination of methods, including on-site surveys, is recommended for achieving better balance in age and employment status distribution.

Bibliographic References

Agrawal, S., De Smet, A., Lacroix, S., Reich, A. (2020). To emerge stronger from the COVID-19 crisis, companies should start reskilling their workforces now. McKinsey Insights, 2. Retrieved from: https://www.mckinsey.com/capabilities/people-and-organizational-performance/our-insights/to-emerge-stronger-from-the-covid-19-crisis-companies-should-start-reskilling-their-workforces-now.

Almeida, V., Barrios, S., Christl, M., De Poli, S., Tumino, A., van der Wielen, W. (2021). The impact of COVID-19 on households' income in the EU. *Journal of Economic Inequality,* 19: 413-431.

Babbie, E.R. (2018). *Introduction to Social Research.* Athens: Kritiki publications (in Greek).

Baptista, I., Marlier, E., Spasova, S., Peña-Casas, R., Fronteddu, B., Ghailani, D., Sabato, S., Regazzoni, P. (2021). *Social Protection and Inclusion Policy Responses to the COVID-19 Crisis. An Analysis of Policies in 35 Countries.* European Social Policy Network (ESPN). Luxembourg: Publications Office of the European Union.

Bryce, J. (1888). *The American Commonwealth*. Vol. 1. London: Macmillan.

Delardas, O., Kechagias, K.S., Pontikos, P.N., Giannos, P. (2022). Socio-Economic Impacts and Challenges of the Coronavirus Pandemic (COVID-19): An Updated Review. *Sustainability*, 14(15):9699.

European Commission (2022). *European comparative data on persons with disabilities. Equal opportunities, fair working conditions, social protection and inclusion, health analysis and trends.* Directorate-General for Employment, Social Affairs and Inclusion Directorate D - Social Rights and Inclusion, Unit D3 - Disability and Inclusion. Brussels: European Commission.

European Union (n.d.). *Glossary: At risk of poverty or social exclusion (AROPE).* Retrieved from: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_(AROPE).

Flor, L.S. et al. (2020). Quantifying the effects of the COVID-19 pandemic on gender equality on health, social, and economic indicators: a comprehensive review of data from March, 2020, to September, 2021. *The Lancet,* 399(10344): 2381-2397.

Gallup, G. (1948). *A Guide to Public Opinion Polls* (1944). Princeton: Princeton University Press.

Habermas, J. (1989). *The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society* (T. Burger, trans.). Cambridge: MA, MIT Press.

(Original work published 1962).

Israel, G.D. (2013). *Determining the Sample Size.* Institute of Food and Agricultural Sciences (IFAS). University of Florida: PEOD-6, 1-5.

Kiriazi, N. (2001). *Social research. Critical overview of methods and techniques.* Athens: Ellinika Grammata publications (in Greek).

Lampiri-Dimaki, I. and Papahristou, T.K. (1995). *Social research with statistical methods*. Athens: Sakkoulas publications (in Greek).

Lazos, G. (1998), *The problem of qualitative research in the social sciences. Theory and practice*. Athens: Papazisis publications (in Greek).

Li, L. (2022). Reskilling and upskilling the future-ready workforce for industry 4.0 and beyond. *Information Systems Frontiers:* 1-16.

Martin, A., Markhvida, M., Hallegatte, S., Walsh, B. (2020). Socio-Economic Impacts of COVID-19 on Household Consumption and Poverty. *Economics of Disasters and Climate Change,* 4: 453-479.

Murphy, J., Link, M.W., Childs, J.H., Tesfaye, C.L., Dean, E., Stern, M., Pasek, J., Cohen, J., Callegaro, M., and Harwood, P. (2014). Social Media in Public Opinion Research: Executive Summary of the AAPOR Task Force on Emerging Technologies in Public Opinion Research. *The Public Opinion Quarterly,* 78(4):788-794.

Nicola, M., Alsafi, Z., Sohrabi, C., Kerwan, Ahmed Al-Jabir, A., Iosifidis, C., Agha, M., Agha, R. (2020). The socio-economic implications of the coronavirus pandemic (COVID-19): A review. *International Journal of Surgery,* Vol. 78: 185-193.

OECD (2023). *Education at a Glance 2023.* OECD Indicators. Paris: OECD Publishing.

Osahon, O.J. and Kingsley, O. (2016). Statistical Approach to the Link between Internal Service Quality and Employee Job Satisfaction: A Case Study. *American Journal of Applied Mathematics and Statistics,* 4(6): 178-184.

Osborne, T. and Rose, N. (2003). Do the social sciences create phenomena?: the example of public opinion research. *The British Journal of Sociology*, 50(3): 367-396.

Paraskevopoulou-Kollia, E.A. (2008). Qualitative research methodology in social sciences and interviews. Open Education - T*he Journal for Open and Distance Education and Educational Technology*, 4(1): 72-81 (in Greek).

Park, R.E. (1972). *The Crowd and the Public and Other Essays* (H. Eisner, Jr., ed.; C.Eisner, trans.). Chicago: University of Chicago Press. (Original work published 1904).

Sakellaropoulos, T. (2019). A methodological outline for social policy research and welfare state of crisis. In: T. Sakellaropoulos et al. (eds). *Honorary volume to Eystathios Tsotsoros.* Athens: Dionicos publications: 223-234 (in Greek).

Skamnakis, C. and Kostas, A. (2020). Local social policies: Between specialization and fragmentation. *Social Cohesion and Development,* 15(1): 5-9.

Vouloutidou, G., Nikas, D., Kostas, A., Tsoukalidis, I., Karasavvoglou, A.G. (2021). The COVID-19 Pandemic and its Effects on the Greek Tourism Sector. Case Study of the Region of Eastern Macedonia - Thrace. *KnE Social Sciences,* Volume 2021:256-274.

Wolf, C., Joye, D., Smith, T.W., Fu, Y. (2016). *The SAGE handbook of survey methodology*. London: Sage Publications Ltd.

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