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ABSTRACT

Forced Labor and Health-Related Outcomes. The Case of Beggar Children

The study aims to examine whether beggar children are victims of forced labor, as well as to identify the manifestations of forced labor in beggar children, and assess whether forced child begging relates to deteriorated health-related quality of life and mental health. The study focused on the capital city of Greece, Athens, where beggar children are not a hard-to-reach group. Cross-sectional data were collected in 2011, 2014, 2018 and 2022, with 127 beggar children taking part in the study. The study adopted the Anti-Slavery International research toolkit, which sets methodological guidelines on researching child begging. A scale was developed to quantify forced child begging based on the International Labour Organization's definition of forced labor. The study found that most beggar children were forced by others to beg, experienced threats of violence, physical and verbal harassment aimed at forcing them to beg, and difficulty in terms of being allowed by others to stop begging. It was found that forced child begging was positively associated with living with unknown people, hunger due to food unavailability the previous week, and negatively associated with native beggar children. It was discovered that forced child begging was negatively associated with health-related quality of life and mental health for beggar children. Child begging encompasses elements of coercion and the deprivation of human freedom. These factors collectively amount to instances of forced labor and/or modern slavery. Policies should ensure that beggar children are removed from harm's way, and that those forcing children to beg are brought to justice.

JEL Classification: J10, J13, J46, J70, I14

Keywords: beggar children, forced labor, coercion, modern slavery, health-related quality of life, mental health

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1. Introduction

Child labor is a type of work which is mentally, physically, socially and/or morally dangerous, as well as harmful to children, not least because it interferes with their schooling (UNICEF, 2019; ILO, 2019 ;2004; 1999). Child begging is a form of child labor where a child asks strangers for money on the basis of being poor and/or sells small items in return for money that may have little to do with the value of the item for sale (ILO, 2004). The act of using a child for the purpose of begging in several possible ways is widely regarded as one of the most detrimental forms of child labor (UNICEF, 2019; ILO, 2019, ILO, 1999). Forced labor refers to work which is exacted upon any person under the menace of any penalty and for which the said person has not offered themselves voluntarily (ILO, 1930). Forced labor includes the element of coercion, indicating that individuals are compelled to work against their will through various forms of threats, violence, or other forms of pressure (ILO, 2014).

Forced child begging involves exploitation that is manifested through a combination of adverse realities for children, such as involuntary work, low or no salary, excessive working days or hours, hazardous work and living conditions, and limited or no access to education (ILO, 2019). Forced child begging violates the human rights of children, i.e., their right to have a safe childhood in their family setting, to receive education, to have time to play, to progress, and to be protected from exploitation (Europol, 2014; ILO, 2004; United Nations, 2000). Forced child begging is a form of modern slavery (Toybox, 2018). Indeed, child begging can be considered a form of modern slavery if children are forced to beg against their will, experience coercion and exploitation, and face deprivation of their human freedom (Toybox, 2018). In line with Sustainable Development Target 8.7, policy makers should take immediate and effective measures to eradicate forced labor, end modern slavery and human trafficking, secure the prohibition and elimination of the worst forms of child labor, and by 2025 end child labor in all its forms (United Nations, 2023).

Beggar children in Greece are not a hard-to-reach group (Anti-Slavery International, 2009a; Altanis and Goddard, 2004). However, no empirical research exists in the region to quantify the manifestations and epidemiological outcomes of forced labor among beggar children. This is due to the fact that official statistics do not exist (Anagnostou and Kandyla, 2015; Altanis and Goddard, 2004). Raw estimates indicate that, in Greece, beggar people, regardless of their demographic characteristics, account for approximately 50,000 of the population (Kostopoulos, 2017). In the country, hundreds of Greek Roma and migrant children from Albania, Romania and Bulgaria are victims of forced begging (US Department of State, 2021; Anagnostou and Kandyla, 2015). It is estimated that between 200 and 250 criminal gangs control the forced begging activity in Greece (Kostopoulos, 2017). The 4/1387/1989 Act prohibits child labor, allowing an exception only for

specific work (e.g., artistic events and radio/television recordings), under strict legal, health and safety conditions, as well as under the special condition that the children's schooling is not harmed (Government Gazette, 1989). As of 2018, based on the 23/4571/2018 Act, begging is not illegal in the country (Government Gazette, 2018). However, the Hellenic Police should intervene if there is evidence linking begging to child labor and forced labor (Alexiadis and Samolada, 2020).

The present study focuses on beggar children working on the streets of the capital city of Greece, Athens in 2011, 2014, 2018 and 2022. The study adopts the Anti-Slavery International toolkit (Anti-Slavery International, 2009a), which sets methodological and ethical guidelines on researching forced child begging.

The work aims to provide answers to five questions. The first question examines whether beggar children are forced to beg by others, while the second question evaluates the manifestations of forced child begging. The third question assesses whether beggar children experience difficulty in terms of being allowed by others to stop begging. The fourth question examines whether forced child begging is associated with deteriorated health-related quality of life for beggar children, while the fifth and final question assesses whether forced child begging is associated with deteriorated adverse mental health for beggar children. Answers to these questions will make it possible to evaluate whether beggar children work involuntarily and experience multiple adverse experiences, while such answers will also enable the assessment of physical and mental health risk factors related to beggar children experiencing forced labor. Each thematic element merits consideration with a view to informing policymakers regarding the magnitude of the phenomenon.

This study contributes to the literature in various ways. Although there are anecdotal claims and limited qualitative research concerning children being forced to beg, systematic research is missing. Indeed, although there exists some evaluation as to whether beggar children are being forced by others to beg, there is no quantitative evaluation related to the nature of forced begging, while, additionally, the physical and mental-health risk factors of forced child begging remain underexamined in the international literature. The present study aims to address the identified gaps so as to determine whether policy action is required in this area.

Moreover, the study develops a new Forced Child Begging scale to capture the ways in which this multifaceted exploitative action is practiced. Given the limited research, examining forced child begging is vital in terms of developing empirical techniques and assessing those techniques in the field. Determining methods with which to collect data on forced begging can inform policy action.

Furthermore, the current study collects data covering a ten-year period and presents patterns based on repeated cross-sectional data gathering by utilizing the same research protocol and procedure in the same region. These features make it possible to offer better-informed evaluations by observing a phenomenon in a few periods, all the while adhering to the Anti-Slavery International research principles on forced child begging (Anti-Slavery International, 2009a). Such an approach is missing in the international literature.

Quantitative research into the nature of forced child begging can be used to provide evidence on the forms it takes, context, and what impacts it has on the children involved. Moreover, quantitative research can identify a variety of responses needed to reduce this exploitative form of child labor and improve the lives of children who are affected by it, through raising awareness among stakeholders and developing prevention strategies. There are many reasons why policymakers should be concerned about forced child begging. The act itself involves young populations who are exploited by parents, guardians and/or criminal gangs, experience physical and verbal harassment, work long hours, do not receive an education, and experience severe vulnerability which affects their smooth transition to adulthood (Srivastava, 2019; Sarker et al., 2016; Anti-Slavery International, 2009a;b; Kerfoot et al., 2007).

Brief background information is provided in the next section, with Section 3 presenting the data collection process. Subsequently, Section 4 presents the study's variables. Section 5 provides the descriptive statistics, while Section 6 evaluates the estimation strategy. Section 7 offers the regression outcomes, before Section 8 puts forth evaluations, and the last section details the conclusions.

2. Literature review

A child should engage in school attendance and leisure (Jafarey and Lahiri, 2001). Child labor is socially undesirable and its reduction a worthy goal (Jafarey and Lahiri, 2001). Economic theory indicates that, because parents dislike child labor and favor leisure for their children, the decision to impose child labor upon their children must be based on the economic conditions facing the household, namely poverty (Basu and Van, 1998). Especially in underperforming countries and societies with a high level of poverty and inexistence of safety nets, households are likely to use children's work as a "buffer" against uncertainty (Jacoby and Skoufias, 1997). Poverty traps can develop, with low parental skills, high unemployment and inactivity levels, high fertility and child labor reinforcing each other through the generations (Dessy, 2000). If a household's income grows, then parents will earn enough to afford not having their children work (Basu and Van, 1998).

Moreover, if households can borrow, at reasonable terms, against the child's higher future earnings, then sending children to work might be unnecessary (Ranjan, 1999). In general, so long as an economy is sufficiently developed to secure decent income for parents, then there will never be an outcome where profit-earning households send any child to work (Swinerton and Rogers, 1999).

Child labor can take the form of child begging (ILO, 2004), the latter of which serves the same manifest function which child labor has: to yield an income (Adriaenssens and Hendrickx, 2011). Begging is informal work in the sense that it is part of those economic activities which circumvent costs and are excluded from the benefits and rights of formal society (Adriaenssens and Hendrickx, 2011; Feige, 1990). Anti-Slavery International (2009b) indicated that poverty, migration, and trafficking away from impoverished communities are key causes of the wider problem of child begging. Moreover, neglect and violence within the family can drive children to beg for survival, while certain cultures and traditions appear to accept child begging (Anti-Slavery International, 2009b). Furthermore, deceit, fraud and organized crime surrounding begging can engage children in the process (Adriaenssens and Hendrickx, 2011). The aforementioned patterns have been found to characterize beggar children in Greece (Anagnostou and Kandyla, 2015; Altanis and Goddard, 2004).

The root of forced child begging could well be exploitation (United Nations, 2000). Forced child begging calls for a multidisciplinary and intersectional approach from economics, sociology, political science and psychology. Forced child begging's characteristics include the harmful and merely instrumental utilization of beggar children's capacities for the economic advantage of parents, guardians and/or criminal gangs (Buchanan, 1985). Parents, guardians and/or criminal gangs' income is derived through coerced and unpaid work undertaken by beggar children; indeed, beggar children do not control the product of their work, which makes income from forced begging exploitative (Holmstrom, 1997; Elster, 1986). Moreover, parents, guardians and/or criminal gangs take advantage of young children's psychological vulnerability which, in turn, disturbs forced beggar children's ability to reason effectively (Hill, 1994), thus causing serious physical, mental and developmental harm (Munzer, 1990). These conditions imply the loss of children's freedom and represent, first and foremost, a violation of human rights (Europol, 2014; ILO, 2004). The exclusions experienced by beggar children due to their street status are a direct cause of their vulnerability to modern slavery, putting them at a greater risk of various forms of exploitation (Toybox, 2018). The recognized drivers of both forced child begging and modern slavery are overwhelmingly the same: poverty, coercion, exploitation, and the deprivation of human freedom (Toybox, 2018; ILO, 2014).

Forced beggar children are mainly young, male, migrant and/or racial minority children who do not receive education and live away from home (Anti-Slavery International, 2009b; ILO, 2004). Parents, guardians and/or criminal gangs use violence to ensure that forced beggar children bring back expected amounts of money each day (Anti-Slavery International, 2009b), and the children themselves have little or no control over their income (Anti-Slavery International, 2009b). Certain reports indicate that children are kidnapped by illegal gangs and forced to beg (Al Helal and Kabir, 2013), while infants and children are often ‘rented’ from their parents to beg for the day (ILO, 2004). In addition, beggar children are at very high risk of sexual abuse by people they encounter while begging and by those forcing them to beg (Srivastava, 2019; Al Helal and Kabir, 2013).

In Greece, qualitative surveys indicate that forced begging is a well-developed business with numerous victims, such as trafficked people, mothers with their children, and disable people (Papantoniou-Frangouli et al., 2011). These people’s movements and their liberties are restricted, while they are sometimes locked in buildings where they spend the night, and their personal documents are withheld. Moreover, they are sheltered in unhealthy conditions, experience punishment, and are not given the money they earn (Papantoniou-Frangouli et al., 2011).

Child begging can be classified as a hazardous form of child labor because, by its nature or the circumstances in which it is carried, it can harm the physical and mental health of beggar children (Srivastava, 2019; Sarker et al., 2016). Child begging involves working in dangerous settings, i.e., streets, as well as under poor hygienic conditions with a lack of nutrition, unhealthy environments characterized by pollution and noise as well as adverse weather conditions, in addition to poverty and limited health-related expenditures (UNICEF, 2019; Srivastava, 2019; Sarker et al., 2016). These conditions were found to negatively impact on beggar children’s physical and mental health (Srivastava, 2019; Sarker et al., 2016; Kerfoot et al., 2007).

Forced child begging involves physical and verbal harassment, and such maltreatment negatively adds to beggar children’s physical and mental health (Srivastava, 2019; Kerfoot et al., 2007). Indeed, reviews indicated that children with a history of physical and verbal harassment were more likely to experience poorer physical and mental health than those who had not experienced maltreatment (Leeb et al., 2011). Similarly, reviews revealed that forced child labor and exploitation were associated with adverse physical and mental health due to multilevel occupational hazards, as well as physical, verbal, and economic maltreatment (Srivastava, 2019; Buller et al., 2015; Kerfoot et al., 2007).

3. Data gathering

When it comes to collecting data on forced child begging, Anti-Slavery International (2009a) recommended rapid interviews with beggar children in the field (i.e., streets), covering topics such as the nature of begging in a process designed to unravel potential forced labor. Using a street-based approach, Altanis and Goddard (2004) identified 354 beggar children in Athens and collected data on demographic characteristics; however, information on forced labor is missing.

With regard to the present study, in February 2011, the research team approached stakeholders working to address forced child labor and/or support ex-beggar children in Athens. The research team forwarded a letter to relevant governmental and non-governmental organizations, such as the Hellenic Police, the Church of Greece, and humanitarian bodies supporting vulnerable children, so as to access their expertise on forced child labor. The letter indicated the scope of the research, i.e., to conduct a field study in Athens and collect information from children begging in the streets. The letter provided information regarding the data gathering protocol and the nature of the questions, which adhered to the Anti-Slavery International (2009a) toolkit.

The letter requested a meeting between the research team and stakeholders. It was indicated that the research team was interested in gathering information regarding the locations where child begging takes place, as well as in considering issues when approaching vulnerable young population groups in streets. Between February and April 2011, the research team met with five stakeholders and critical information was provided. For instance, given the provided information, the places where child begging was taking place were marked on the official Athenian city map. The areas consisted of central avenues, market streets, underground stations, popular tourist destinations, churches, and other busy locations, among other places.

Between November and December 2011, on Fridays and Saturdays each week, the data collection was conducted. The fieldwork was carried out between 9:00 and 15:00. During this time frame, the research team, guided by the identified child begging areas on the official Athenian city map, sought to visit as many areas as possible. The research team approached beggar children who were begging without the presence of adult guardians. The purpose of this was to minimize risks to beggar children in case they were open regarding potential adverse experiences in front of adults (Anti-Slavery International, 2009a). The priority was to ensure that the beggar children were free to express their realities without fear of retaliation. In all cases, beggar children had a choice in terms of whether or not to take part in the research, while they were also informed of their right to withdraw from the research at any time. The study followed the usual procedures for securing ethics approval and ensuring the anonymity of participants. During the ethics clearance process, the research team addressed the Anti-Slavery International (2009a) 23-item checklist on "Protecting Children Who Take Part in Research."

The research team consisted of a principal investigator and two research assistants. The principal investigator had accumulated experience in collecting cross-sectional and longitudinal data from vulnerable adult population groups identified in Athenian streets, e.g., sex workers, homeless people, and illicit drug users (Drydakís, 2022a), migrant and refugee groups (Drydakís, 2021; 2022b), young population groups enrolled in schools (Drydakís, 2023a; b), sexual orientation minorities (Drydakís, 2022c; d), and the general public (Drydakís, 2015).

In November and December 2014, the research team followed the same research protocol and procedure. The 2011 questionnaire was used for each subsequent data collection process. Given the limited observations collected in the first two data gathering periods, the research team decided to repeat the fieldwork in additional periods; the aim was to gather at least 120 observations (Martínez-Mesa et al., 2014). In November and December 2018 and 2022, the research team followed the 2011 research protocol and procedure. Hence, in total, four repeated cross-sectional data sets were collected in 2011, 2014, 2018 and 2022 in the city of Athens.

In the appendix, Table AI presents the number of beggar children approached by the research team who did not partake in the survey because they did not want to participate and/or communication was not feasible due to language constraints, as well as the number of those who participated in the survey. Between 2011 and 2022, the research team identified 335 beggar children, 127 (or 37.9%) of whom engaged in the survey. In 80 cases (23.8%), beggar children were begging in groups, and in 96 cases (28.6%) beggar children were selling items (e.g., pencils), and/or performing (i.e., singing, playing musical instruments), and/or washing car windows.

[Table AI]

4. Variables

During each data gathering period, beggar children received a request to provide information in relation to their demographic characteristics (i.e., age and ethnicity) and living arrangements (i.e., living with parents, or with relatives/friends, or with unknown people). Moreover, the survey requested information on hunger due to food unavailability the previous week, capturing the frequency of the condition (i.e., always, often, sometimes, rarely, never) (UNICEF, 2010).

The survey obtained information in relation to the characteristics of child begging, making it possible to capture whether forced labor occurred (Anti-Slavery International, 2009a). Given ILO's (1930) definition of forced labor, the study created a new Forced Child Begging scale (FCB_T) consisting of five items/questions aimed at ascertaining whether beggar children begged

involuntarily. The first question captured whether beggar children "were forced by others to beg" (FCB_{fbo})¹. The second question examined whether beggar children "experienced threats of violence aimed at forcing them to beg" (FCB_{thr})². The third question evaluated whether beggar children "experienced physical harassment aimed at forcing them to beg" (FCB_{phh})³. Moreover, the fourth question focused on whether beggar children "experienced verbal harassment aimed at forcing them to beg" (FCB_{vrh})⁴. The fifth question examined whether beggar children "experienced difficulty in terms of being allowed by others to stop begging" (FCB_{dsb})⁵. The five questions yielded a categorical outcome (i.e., always, often, sometimes, rarely, never), thus capturing the frequency of the event (Krosnick et al., 2018). Higher Forced Child Begging (FCB_T) scale scores indicated higher levels of forced labor⁶.

Health-related quality of life was measured through the KIDSCREEN-10 questionnaire (The KIDSCREEN Group Europe, 2006). This instrument is a self-disclosure quality of life inventory for healthy and chronically-ill children and adolescents (Ravens-Sieberer et al., 2010). The instrument comprises ten items examining whether children and adolescents felt fit, well, and full of energy in the previous week (Ravens-Sieberer et al., 2010). Studies found that the instrument can provide reliable health evaluations in more than 40 countries (Ravens-Sieberer et al., 2014; Ravens-Sieberer et al., 2010; The KIDSCREEN Group Europe, 2006). Each of the ten answers corresponds to a 5-point Likert scale. Subsequently, responses are summed up, and Rasch person parameters are assigned to each possible sum score. Rasch person parameters are then transformed into values with a mean of approximately 50 and a standard deviation of approximately 10 (Ravens-Sieberer et al., 2014; Ravens-Sieberer et al., 2010; The KIDSCREEN Group Europe, 2006). Higher KIDSCREEN-10 scores denote increasing levels of health-related quality of life (The KIDSCREEN Group Europe, 2006).

Moreover, the Center for Epidemiological Studies Depression Scale for Children assessed adverse mental health symptoms (CES-DC) (Weissman et al., 1980). The instrument is a 20-item

¹ The question read "Are you forced by others to beg, work, or engage in this activity in this location, meaning, are you begging, working or engaging in this activity in this location against your will and consent?"

² The question read "Are you experiencing threats of violence aimed at forcing you to beg, work, or engage in this activity in this location?"

³ The question read "Are you experiencing physical harassment aimed at forcing you to beg, work, or engage in this activity in this location?"

⁴ The question read "Are you experiencing verbal harassment aimed at forcing you to beg, work, or engage in this activity in this location?"

⁵ The question read "Are you experiencing difficulty being allowed by others to stop begging, working, or engaging in this activity in this location?"

⁶ $FCB_T = (FCB_{fbo} + FCB_{thr} + FCB_{phh} + FCB_{vrh} + FCB_{dsb})/5$

self-report depression inventory, and includes statements such as "I felt down, unhappy, and sad in the past week." Studies found that CES-DC has good psychometric properties for the adolescents (Stockings et al., 2016; Radloff, 1991). Each answer is linked to a 4-point Likert scale. Higher CES-DC scores suggest increasing levels of adverse mental health symptoms (Stockings et al., 2016; Radloff, 1991; Weissman et al., 1980).

5. Descriptive statistics

5.1 Socio-demographic characteristics

Table 1 presents the descriptive statistics of the beggar children. Panel I illustrates data for the 2011 period (n=32), while Panel II displays data for the 2014 period (n=43), Panel III presents data for the 2018 period (n=28), and Panel IV shows data for the 2022 period (n=24). Moreover, Panel V pools the data sets (n=127). The pooled data indicate that the mean age of the beggar children was 12.4. Moreover, 66.1% of the beggar children were males. The difference between the male and female beggar children is statistically significant at the 1% ($z=5.1$) level. It is found that 30.7% were natives. The difference between native and non-native beggar children is statistically significant at the 1% ($z=6.14$) level.

The outcomes suggest that 29.1% of the beggar children lived with their parents, 20.4% lived with relatives and/or friends, and 50.3% lived with unknown people. The difference between beggar children who were living with their parents and all the other cases is statistically significant at the 1% ($z=6.6$) level.

The outcomes indicate that 17.3% of the beggar children did not feel hungry due to food unavailability the previous week. In all the other cases, they experienced hunger ranging from sometimes (15.7%) to often (30.7 %). The difference between beggar children who did not feel hungry due to food unavailability the previous week and all the other cases is statistically significant at the 1% ($z=10.4$) level.

[Table 1]

5.2 Forced Child Begging Scale

Table 2 presents the descriptive statistics for the Forced Child Begging scale. The scale consists of five items. Both aggregate means and item's proportion are offered for the four periods. Panel V pools the data sets. The exploratory factor analysis indicated that the five questions which form the Forced Child Begging scale could be grouped together. Each factor loading was higher than 0.4 ($fl>0.4$) (Finch, 2020). Further, the Forced Child Begging scale's Cronbach's alpha

coefficient equaled 0.89, surpassing the threshold (0.70), and thus indicating internal consistency (Cortina, 1993).

In Panel V, the outcomes suggest that 8.6% of the beggar children were not forced by others to beg. In all of the other cases, beggar children were forced by others to beg, ranging from rarely (11.8%) to always (36.2%). The difference between beggar children begging voluntarily (without being forced by others) and all the other cases is statistically significant at the 1% ($z=13.1$) level.

The statistics denote that 9.4% of the beggar children did not experience threats of violence aimed at forcing them to beg. However, in all of the other cases, they experienced threats of violence aimed at forcing them to beg, ranging from rarely (12.5%) to always (33%). The difference between beggar children who did not experience threats of violence aimed at forcing them to beg and all the other cases is statistically significant at the 1% ($z=12.9$) level.

In addition, it is found that 19.6% of the beggar children did not experience physical harassment aimed at forcing them to beg. In all of the other cases, they experienced physical harassment aimed at forcing them to beg, ranging from rarely (13.3%) to always (24.4%). The difference between beggar children who did not experience physical harassment aimed at forcing them to beg and all the other cases is statistically significant at the 1% ($z=9.6$) level.

Furthermore, 12.5% of the beggar children did not experience verbal harassment aimed at forcing them to beg. However, in all of the other cases, they did experience verbal harassment aimed at forcing them to beg, ranging from rarely (14.9%) to always (29.1%). The difference between beggar children who did not experience verbal harassment aimed at forcing them to beg and all the other cases is statistically significant at the 1% ($z=11.9$) level.

It is found that 5.5% of the beggar children did not experience difficulty in terms of being allowed by others to stop begging. However, in all the other cases, beggar children did experience difficulty in terms of being allowed by others to stop begging, ranging from rarely (7.8%) to often (35.3%). The difference between beggar children who did not experience difficulty in terms of being allowed by others to stop begging and all the other cases is statistically significant at the 1% ($z=14.8$) level.

[Table 2]

5.3 Correlation matrices

Table 3 offers a correlation matrix. It is illustrated that the Forced Child Begging scale was positively correlated with age ($r=0.19$, $p<0.05$), living with unknown people ($r=0.42$, $p<0.01$), hunger due to food unavailability the previous week ($r=0.82$, $p<0.01$), and adverse mental health symptoms (CES-DC) ($r=0.79$, $p<0.01$). Moreover, the Forced Child Begging scale was negatively

correlated with men ($r=-0.15$, $p<0.10$), natives ($r=-0.52$, $p<0.01$) and health-related quality of life (KIDSCREEN-10) ($r=-0.90$, $p<0.01$). That is, beggar children who were older, females, non-natives, living with unknown people, and experienced hunger due to food unavailability the previous week faced higher levels of forced begging. Moreover, forced child begging was associated with deteriorated health-related quality of life and adverse mental health symptoms.

[Table 3]

Table 4 offers a further correlation matrix. It is found that each of the five items on the Forced Child Begging scale was positively correlated with the rest of the items. For instance, "forced by others to beg" was positively correlated with "experienced threats of violence aimed at forcing them to beg" ($r=0.78$, $p<0.01$), "experienced physical harassment aimed at forcing them to beg" ($r=0.54$, $p<0.01$), "experienced verbal harassment aimed at forcing them to beg" ($r=0.67$, $p<0.01$), and "experienced difficulty in terms of being allowed by others to stop begging" ($r=0.75$, $p<0.01$). Hence, the five adverse conditions that form the Forced Child Begging scale did not exist in isolation.

It is found that each of the five items on the Forced Child Begging scale was negatively associated with beggar children's health-related quality of life (KIDSCREEN-10). For instance, "experienced physical harassment aimed at forcing them to beg" was negatively associated with beggar children's health-related quality of life (KIDSCREEN-10) ($r=-0.67$, $p<0.01$). Moreover, each of the five items on the Forced Child Begging scale was positively associated with beggar children's adverse mental health symptoms (CES-DC). For instance, "experienced difficulty in terms of being allowed by others to stop begging" was positively associated with beggar children's adverse mental health symptoms (CES-DC) ($r=0.70$, $p<0.01$).

[Table 4]

6. Empirical strategy

In Table 5, Model I assesses the associations between the Forced Child Begging scale and beggar children's characteristics. OLS specifications with time-fixed effects are utilized (Wooldridge, 2010). The empirical specification includes information on beggar children's age, gender, ethnicity, living arrangements and hunger due to food unavailability the previous week. These variables have been identified as critical explanatory information variables related to forced child labor, child begging, forced child begging, and children's physical and mental health (Drydakis, 2023a;b; UNICEF, 2019; 2010; Anti-Slavery International, 2009a). It is indicated that better-informed specifications might reduce potential omitted variable bias (Clarke, 2005). To acquire further insights, Models II-VI report associations between each of the Forced Child Begging

scale's items and beggar children's characteristics. Given the categorical nature of the dependent variables, Ordered Probit specifications with time-fixed effects are utilized (Wooldridge, 2010).

In Table 6, to assess associations between beggar children's health-related quality of life (KIDSCREEN-10) and forced child begging, seven models are offered. In all cases, OLS specifications with time-fixed effects are put forth. Model I includes the Forced Child Begging scale (FCB_T). A negative and statistically significant Forced Child Begging scale (FCB_T) estimate will indicate a negative association between forced child begging and health-related quality of life for beggar children. Model II includes the Forced Child Begging scale's items. Subsequently, Models III-VII assess, one by one, the Forced Child Begging scale's items. The empirical specifications make it possible to evaluate the robustness of the associations under consideration in different settings (i.e., joint effects and individual effects).

In Table 7, a similar approach to that seen in Table 6 is adopted to assess the associations between beggar children's adverse mental health symptoms (CES-DC) and forced child begging. In all cases, the empirical specifications also offer the marginal effects (m.e.) at the mean of each continuous and categorical covariate. The marginal effects of the dichotomic variables are calculated as the discrete change in the prediction equation as the covariate changes from zero to one (Wooldridge, 2010).

7. Regression results

7.1 Forced child begging

Table 5, Model I, illustrates that the Forced Child Begging scale is positively associated with living with relatives and/or friends ($b=0.537$, $p<0.01$ or $m.e.=0.031^7$), living with unknown people ($b=0.396$, $p<0.01$ or $m.e.=0.056$), and hunger due to food unavailability the previous week ($b=0.549$, $p<0.01$ or $m.e.=0.482$); conversely, the scale is negatively associated with Greek nationality ($b=-0.319$, $p<0.05$ or $m.e.=-0.027$).

Model II demonstrates that "forced by others to beg" is positively associated with living with relatives and/or friends ($b=0.979$, $p<0.01$ or $m.e.=0.069$), living with unknown people ($b=0.589$, $p<0.05$ or $m.e.=0.103$), and hunger due to food unavailability the previous week ($b=0.755$, $p<0.01$ or $m.e.=0.820$).

⁷ A one standard deviation increase in "living with relatives and/or friends" is associated with a 3.1% increase in Forced Child Begging scale.

Model III shows that "experienced threats of violence aimed at forcing them to beg" is positively associated with living with relatives and/or friends ($b=0.757$, $p<0.05$ or $m.e.=0.045$), as well as hunger due to food unavailability the previous week ($b=0.786$, $p<0.01$ or $m.e.=0.720$).

Moreover, Model IV illustrates that "experienced physical harassment aimed at forcing them to beg" is positively associated with hunger due to food unavailability the previous week ($b=0.486$, $p<0.01$ or $m.e.=0.760$), and negatively associated with Greek nationality ($b=-0.516$, $p<0.05$ or $m.e.=-0.080$).

Model V presents that "experienced verbal harassment aimed at forcing them to beg" is positively associated with age ($b=0.156$, $p<0.01$ or $m.e.=0.468$) and hunger due to food unavailability the previous week ($b=0.604$, $p<0.01$ or $m.e.=0.456$).

In addition, Model VI illustrates that "experienced difficulty in terms of being allowed by others to stop begging" is positively associated with living with relatives and/or friends ($b=1.196$, $p<0.01$ or $m.e.=0.083$), living with unknown people ($b=1.022$, $p<0.01$ or $m.e.=0.174$), and hunger due to food unavailability the previous week ($b=0.918$, $p<0.01$ or $m.e.=0.971$).

[Table 5]

7.2 Beggar children's health-related quality of life

Table 6 puts forth the health-related quality of life (KIDSCREEN-10) estimates. Model I shows that the Forced Child Begging scale is negatively associated with beggar children's health-related quality of life ($b=-8.050$, $p<0.01$ or $m.e.=-0.706$).

Model II reveals that "forced by others to beg" is negatively associated with beggar children's health-related quality of life ($b=-1.540$, $p<0.01$ or $m.e.=-0.141$). The same pattern is found to hold with "experienced threats of violence aimed at forcing them to beg" ($b=-1.952$, $p<0.01$ or $m.e.=-0.175$), "experienced physical harassment aimed at forcing them to beg" ($b=-1.557$, $p<0.01$ or $m.e.=-0.122$), "experienced verbal harassment aimed at forcing them to beg" ($b=-1.805$, $p<0.01$ or $m.e.=-0.154$), and "experienced difficulty in terms of being allowed by others to stop begging" ($b=-0.958$, $p<0.1$ or $m.e.=-0.088$).

Model III shows that "forced by others to beg" is negatively associated with beggar children's health-related quality of life ($b=-3.672$, $p<0.01$ or $m.e.=-0.337$). Additionally, Model IV demonstrates that "experienced threats of violence aimed at forcing them to beg" is negatively associated with beggar children's health-related quality of life ($b=-3.923$, $p<0.01$ or $m.e.=-0.352$). Further, Model V indicates that "experienced physical harassment aimed at forcing them to beg" is negatively associated with beggar children's health-related quality of life ($b=-2.197$, $p<0.01$ or $m.e.=-0.173$). Model VI denotes that "experienced verbal harassment aimed at forcing them to beg"

is negatively associated with beggar children's health-related quality of life ($b=-3.125$, $p<0.01$ or $m.e.=-0.266$). Furthermore, Model VII illustrates that "experienced difficulty in terms of being allowed by others to stop begging" is negatively associated with a deterioration in beggar children's health-related quality of life ($b=-3.140$, $p<0.01$ or $m.e.=-0.290$).

Regarding the rest of the covariates, in Model VI a positive association is found between age and beggar children's health-related quality of life ($b=0.408$, $p<0.10$ or $m.e.=0.125$). In Models V and VI, it is estimated that there exists a negative association between living with relatives and/or friends and beggar children's health-related quality of life ($b=-3.788$, $p<0.05$ or $m.e.=-0.019$, and $b=-3.547$, $p<0.05$ or $m.e.=-0.017$; respectively). Moreover, in Models V and VI, there is reported a negative association between living with unknown people and beggar children's health-related quality of life ($b=-2.467$, $p<0.10$ or $m.e.=-0.030$, and $b=-2.699$, $p<0.05$ or $m.e.=-0.033$, respectively).

Furthermore, a negative association is found between hunger due to food unavailability the previous week and beggar children's health-related quality of life in Model III ($b=-3.050$, $p<0.01$ or $m.e.=-0.234$), Model IV ($b=-2.730$, $p<0.01$ or $m.e.=-0.210$), Model V ($b=-4.064$, $p<0.01$ or $m.e.=-0.313$), Model VI ($b=-3.370$, $p<0.01$ or $m.e.=-0.259$) and Model VII ($b=-3.499$, $p<0.01$ or $m.e.=-0.269$).

[Table 6]

7.3 Beggar children's adverse mental health symptoms

Table 7 presents the adverse mental health (CES-DC) estimates. Model I demonstrates a positive association between the Forced Child Begging scale and beggar children's adverse mental health ($b=2.667$, $p<0.01$ or $m.e.=0.516$).

Model II shows that "experienced physical harassment aimed at forcing them to beg" is positively associated with beggar children's adverse mental health ($b=0.602$, $p<0.05$ or $m.e.=0.104$).

Model III illustrates that "forced by others to beg" is positively associated with beggar children's adverse mental health ($b=1.295$, $p<0.01$ or $m.e.=0.263$). Further, Model IV presents that "experienced threats of violence aimed at forcing them to beg" is positively associated with beggar children's adverse mental health ($b=1.089$, $p<0.01$ or $m.e.=0.216$). Model V indicates that "experienced physical harassment aimed at forcing them to beg" is positively associated with beggar children's adverse mental health ($b=0.803$, $p<0.01$ or $m.e.=0.139$). Moreover, Model VI illustrates that "experienced verbal harassment aimed at forcing them to beg" is positively associated with beggar children's adverse mental health ($b=0.835$, $p<0.01$ or $m.e.=0.157$). Model VII shows that "experienced difficulty in terms of being allowed by others to stop begging" is

positively associated with beggar children's adverse mental health ($b=1.449$, $p<0.01$ or $m.e.=0.296$).

The remaining estimates indicate a negative association between male beggar children and adverse mental health in Model I ($b=-1.098$, $p<0.10$ or $m.e.=-0.039$), Model IV ($b=-1.443$, $p<0.05$ or $m.e.=-0.052$), Model VI ($b=-1.254$, $p<0.10$ or $m.e.=-0.045$) and Model VII ($b=-1.153$, $p<0.10$ or $m.e.=-0.041$). There is a negative association between native beggar children and adverse mental health in Model III ($b=-1.664$, $p<0.05$ or $m.e.=-0.027$), Model IV ($b=-1.805$, $p<0.05$ or $m.e.=-0.030$), Model V ($b=-1.631$, $p<0.10$ or $m.e.=-0.027$), Model VI ($b=-1.795$, $p<0.05$ or $m.e.=-0.030$) and Model VII ($b=-1.998$, $p<0.05$ or $m.e.=-0.033$).

Moreover, it is estimated that there exists a positive association between feeling hungry due to food unavailability the previous week and beggar children's adverse mental health in Model I ($b=1.398$, $p<0.01$ or $m.e.=0.237$), Model II ($b=1.362$, $p<0.01$ or $m.e.=0.231$), Model III ($b=2.130$, $p<0.01$ or $m.e.=0.362$), Model IV ($b=2.198$, $p<0.01$ or $m.e.=0.373$), Model V ($b=2.474$, $p<0.01$ or $m.e.=0.420$), Model VI ($b=2.394$, $p<0.01$ or $m.e.=0.407$) and Model VII ($b=2.111$, $p<0.01$ or $m.e.=0.359$).

[Table 7]

8. Discussion of the outcomes

8.1 Discussion

The present study offered quantitative evaluations of five underexamined questions regarding child labor related to beggar children. Question 1 examined whether beggar children were forced by others to beg. It was found that most beggar children begged involuntarily. This pattern was consistent across all periods in the sample. The estimates denoted that living without parents and hunger due to food unavailability the previous week were associated with "forced by others to beg".

Question 2 evaluated the manifestations of forced child begging. The outcomes suggested that most beggar children experienced threats of violence, and physical and verbal harassment aimed at forcing them to beg. The assigned patterns were consistent in each period in the data set. It was estimated that living without parents was associated with "threats of violence aimed at forcing them to beg." Migrant beggar children experienced higher levels of physical harassment aimed at forcing them to beg. Hunger due to food unavailability the previous week was associated with threats of violence, and physical and verbal harassment aimed at forcing them to beg.

Question 3 assessed whether beggar children experienced difficulty in terms of being allowed by others to stop begging. It was found that most beggar children experienced critical

difficulty in terms of being allowed by others to stop begging. The patterns were consistent across the four periods in the data set. The estimates suggested that living without parents and hunger due to food unavailability the previous week were associated with "difficulty in terms of being allowed by others to stop begging."

The answers to questions 1 to 3 made it possible to quantitatively evaluate ILO's (1930; 2014) definitions of coercion and forced labor. Moreover, the answers to questions 1 to 3 indicated that child begging includes coercion, forced labor and the denial of human freedom. These three elements together constitute a situation that can be identified as modern slavery (ILO, 2014). In addition, the analysis indicated that the following variables coexisted: "forced by others to beg," as well as "experienced threats of violence, physical and verbal harassment aimed at forcing them to beg," and "experienced difficulty in terms of being allowed by others to stop begging." An increased risk of being forced by others to beg revealed itself in the presence of threats of violence, physical and verbal harassment aimed at forcing them to beg and difficulty in terms of being allowed by others to stop begging.

Questions 4 and 5 assessed whether forced child begging was associated with deteriorated health-related quality of life and mental health for beggar children. The estimates indicated that forced child begging was associated with worse health-related quality of life and deteriorated mental health of beggar children. With regard to both questions, it was found that "forced by others to beg," "experienced threats of violence, physical and verbal harassment aimed at forcing them to beg," and "experienced difficulty in terms of being allowed by others to stop begging" were associated with deteriorated health-related quality of life and mental health for beggar children. Figure 1, presents the relationships between forced child begging and deteriorated health-related quality of life and mental health for beggar children.

[Figure 1]

The assigned patterns are in line with the limited evidence from qualitative studies (Srivastava, 2019; Anagnostou and Kandyla, 2015; Buller et al., 2015; Papantoniou-Frangouli et al., 2011; Anti-Slavery International, 2009b; Kerfoot et al., 2007; Altanis and Goddard, 2004). The outcomes of the study confirmed that child begging requires an interdisciplinary approach. Child begging involves children who are treated instrumentally or merely as a means (Buchanan, 1985), are coerced (Holmstrom, 1997), are harmed (Buchanan, 1985; Holmstrom, 1997, Munzer, 1990), and whose consent may not be genuine (Hill, 1994). The ease of identifying beggar children on the streets of Athens who are victims of forced labor, or even modern slavery, and the actual

manifestations of forced child begging indicate a lack of action by governments to tackle the phenomenon effectively.

Forced child begging constitutes a gross violation of children's rights. In the present study, beggar children who lived with third parties (i.e., relatives, friends, unknown people) experienced higher levels of forced labor and physical and verbal harassment aimed at forcing them to beg, but the problem of parents forcing their children to beg should not be ignored, despite the particular challenges this involves. In the study, migrant beggar children faced higher levels of forced labor and physical harassment aimed at forcing them to beg. Given the assigned patterns, this study recognizes that, in order to evaluate and address forced child begging, there is a need for intersectional approaches that consider beggar children's demographic and socio-economic characteristics (Yuval-Davis, 2015; Sen et al., 2009).

The severity of forced labor and physical and mental health outcomes and inequalities among beggar children may be shaped through an interplay that involves a vector of characteristics such as history of migration, ethnic and racial backgrounds, living arrangements, and level of exploitation and vulnerability (Anti-Slavery International, 2009a; Sen et al., 2009). In addition, because child begging is a hazardous form of child labor which takes place in dangerous and unhealthy settings, it might be linked to adverse health-related conditions (Srivastava, 2019; Sarker et al., 2016; Kerfoot et al., 2007). The more severe the adverse working conditions in marginalized communities, the more deteriorated the health and mental health status of workers might be (Drydakis, 2022a; b). The outcomes of the present study may well support the above argument.

Beggar children's hunger due to food unavailability was found to be prevalent in each empirical specification in the study. Most beggar children experienced food unavailability, while food unavailability was also associated with forced labor and deteriorated health-related quality of life and mental health status of beggar children. This outcome might indicate that the beggar children who were surveyed experienced severe poverty. Moreover, it might be the case that food unavailability drove the children to beg for survival. In addition, food unavailability could well be a further manifestation of forced child labor and/or modern slavery. Children might be provided with insufficient amounts of food so that they beg more effectively; indeed, these scenarios might coexist. Child hunger offers an important focus for the struggle for children's rights in that it represents one of the most extreme, yet troublingly commonplace, demonstrations of child poverty in the world, and is a further indicator of a general failure of states to protect children's physical and mental health and progression (UNICEF, 2019; Leeb et al., 2011).

8.2 Implications

Quantifying forced child begging is not only important for understanding the nature of the problem but also for developing effective interventions to combat it (ILO, 2019; Toybox, 2018; United Nations, 2000). In the present study, the proposed Forced Child Begging scale (FCBT), can serve as a foundation for further research and analysis. Researchers can use the scale to delve deeper into the causes, consequences, and potential solutions to the issue. The significance of the Forced Child Begging scale lies in its ability to collect standardized information, enabling a more rigorous and systematic analysis of forced child begging.

The Forced Child Begging scale can contribute to the establishment of a common framework for understanding and discussing complex concepts, promoting consistency and accuracy in the study of forced child begging. This feature can enhance the reliability and validity of research outcomes, facilitating comparisons, identifying patterns, and drawing meaningful conclusions.

Policymakers can utilize the findings of this current study to develop evidence-based policies and regulations aimed at preventing, mitigating, and reducing instances of forced child begging, while also offering necessary support to the victims (Toybox, 2018). Empirical research on forced child begging can provide a basis for holding governments, businesses, and other stakeholders accountable for their efforts to reduce the problem (ILO, 2019). It can enable stakeholders to measure progress, report on outcomes, and demonstrate their commitment to eradicating the practice (Drydakis, 2015). Indeed, empirical research examining forced child begging helps raise awareness about the nature and the extent of the problem (ILO, 2019). When policymakers, organizations, and the public have concrete data, it becomes easier to advocate for policy changes, strategic planning, and interventions to effectively address the phenomenon (Drydakis, 2022a; b). With empirical evidence on forced child begging, interventions can be targeted towards specific demographic groups, and regions where forced child begging is most prevalent. This approach can maximize the effectiveness of efforts to combat the phenomenon and ensures that resources are directed where they are needed the most. Moreover, because forced child begging is an international phenomenon, informative empirical research can facilitate international collaboration and coordination among governments, and organizations to collectively address the problem across borders (ILO, 2019). Tracking the prevalence of forced child begging over time, it can help identify trends, patterns, and shifts in its occurrence. This information is crucial for adjusting strategies and interventions to address emerging challenges.

The study's results should indicate to the policymakers the magnitude of forced child begging and remind them of their international and legal commitments to protect children

(Government Gazette, 1989; United Nations, 2000). The outcomes should influence policymakers and encourage them to develop effective policies designed to rescue and support beggar children, and especially those who are forced to beg. Policy makers should conduct well-coordinated rescue operations to identify and save child beggars, while ensuring their safety and well-being during and after rescue. Beggar children must be removed from harm's way and placed in a safe and caring environment, where they have access to school and healthcare (Anti-Slavery International, 2009a).

Policy makers should provide specialized counseling and rehabilitation services for children rescued from forced begging to help them reintegrate into society. Whenever possible and safe, policies should work towards reuniting children with their families, ensuring a supportive environment for their growth. In addition, policy makers should provide access to quality education for children at risk of forced begging, as education is a crucial tool in breaking the cycle of exploitation (ILO, 2019; UNICEF, 2019; 2010; United Nations, 2000).

Policymakers ought to ensure that policies are enforced so that parents, guardians and/or criminal gangs forcing children to beg are brought to justice, thus preventing forced child begging (Anti-Slavery International, 2009a). Because the factors pushing children into forced begging might be the same as those that expose children to modern slavery, policy makers should strengthen laws against child exploitation, and coercion, and ensure effective implementation and enforcement of these laws, with appropriate penalties for those involved in forcing children into labor (Toybox, 2018).

There is an urgent need for the development of strategies designed to prevent forced child begging, and which deal with root causes such as poverty and neglected families (Anti-Slavery International, 2009b; Jacoby and Skoufias, 1997). Policymakers should remove the factor of poverty, which is critical in parents' decisions regarding whether or not to send their children away or out to beg (Anti-Slavery International, 2009b; Dessy, 2000). Policymakers should strengthen social welfare systems to provide financial assistance and support to families to prevent them from resorting to forcing their children into begging due to economic pressures (ILO, 2019).

Policies need to raise awareness about the issue of forced child begging through campaigns, workshops, and community outreach. Addressing forced child begging requires a comprehensive and collaborative effort involving governments, civil society, and international organizations (ILO, 2019). Reducing forced child begging requires a multi-faceted approach that involves legal, social, and economic strategies to reduce the root causes and provide comprehensive support for the affected children.

8.3 Limitations

The presented outcomes should be considered with caution, as the data were collected in a specific region of Greece. The surveying of the capital city alone might not allow for generalizations, and so additional regions should be considered for generalization. The study used only five indicators and/or manifestations of forced child begging. A new study might utilize additional dimensions, such as money and personal documents retention. Similarly, a new study may consider utilizing additional physical and mental health scales to validate the robustness of the present study.

The current study did not examine whether trafficking for forced child begging took place. A new study should incorporate relevant questions to offer further evaluations. In the present study, few beggar children were keen to participate. It is difficult to evaluate whether the study's participants were characterized by higher or lower levels of forced labor. In addition, the study utilized cross-sectional data. Representative data are needed for firm evaluations when one examines vulnerable young population groups.

Given the nature of the phenomenon under consideration, it was difficult to collect longitudinal observations. Hence, the study did not deal with endogeneity i.e., from poor physical and mental health to higher levels of forced labor. The estimated patterns might have been affected by unobserved heterogeneity. Information on health conditions, history of vulnerability, personality traits, and coping mechanisms might reduce critical heterogeneity.

9. Conclusions

This study offered quantitative evaluations suggesting that, during the period between 2011 and 2022 in Athens, Greece, the majority of beggar children in the sample were forced by others to beg. The outcomes indicated that most beggar children experienced threats of violence, and physical and verbal harassment aimed at forcing them to beg, as well as a critical level of difficulty in terms of being allowed by others to stop begging. Moreover, it was found that forced child begging was associated with beggar children's worse health-related quality of life and deteriorated mental health. Policymakers must remove beggar children from harm's way. Indeed, penalties should minimize parents, guardians and/or criminal gangs' incentives for forced child begging. The roots of forced child labor, should also be addressed.

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Table 1. Descriptive statistics. Beggar Children

	Panel I. Year 2011	Panel II. Year 2014	Panel III. Year 2018	Panel IV. Year 2022	Panel V. Total sample
Age (c.)	13.0 (2.03)	12.18 (2.16)	12.35 (2.34)	12.08 (2.18)	12.40 (2.17)
Males (%)	62.5 (0.49)	72.09 (0.45)	60.71 (0.49)	66.66 (0.48)	66.14 (0.47)
Natives (%)	25.0 (0.43)	27.90 (0.45)	35.71 (0.48)	37.5 (0.49)	30.70 (0.46)
Living with parents (%)	31.25 (0.47)	25.58 (0.44)	28.57 (0.46)	37.5 (0.49)	29.13 (0.45)
Living with relatives and/or friends (%)	34.37 (0.48)	13.95 (0.35)	21.42 (0.41)	12.5 (0.33)	20.47 (0.40)
Living with unknown people (%)	34.37 (0.48)	60.46 (0.49)	50.0 (0.50)	50.0 (0.51)	50.39 (0.5)
Feeling hungry due to food unavailability the previous week (c.)	3.28 (1.48)	3.13 (1.28)	2.82 (1.33)	3.00 (1.38)	3.11 (1.37)
Always (%)	28.12 (0.08)	13.95 (0.05)	7.14 (0.04)	12.5 (0.06)	17.32 (0.03)
Often (%)	25.0 (0.07)	32.55 (0.07)	35.71 (0.09)	29.16 (0.09)	30.70 (0.04)
Sometimes (%)	9.37 (0.05)	20.93 (0.06)	10.71 (0.05)	29.16 (0.09)	15.74 (0.03)
Rarely (%)	21.87 (0.07)	18.60 (0.06)	25.0 (0.08)	4.16 (0.04)	18.89 (0.03)
Never (%)	15.62 (0.06)	13.95 (0.05)	21.42 (0.07)	25.0 (0.09)	17.32 (0.03)
Health-related quality of life (KIDSCREEN-10) (c.)	38.51 (11.73)	40.62 (9.63)	42.33 (9.37)	40.7 (9.03)	40.48 (10.01)
Adverse mental health symptoms (CES-DC) (c.)	19.40 (6.12)	19.02 (5.81)	17.21 (6.27)	18.62 (6.49)	18.33 (6.06)
Observations	32	43	28	24	127

Notes: (c.) Continues variable. (%) Percentages. Standard deviations are in parenthesis.

Table 2. Descriptive statistics. Forced Child Begging Scale

	Panel I. Year 2011	Panel II. Year 2014	Panel III. Year 2018	Panel IV. Year 2022	Panel V. Total sample
Forced by others to beg (c.)	3.62 (1.36)	3.88 (1.23)	3.67 (1.36)	3.62 (1.31)	3.72 (1.30)
Always (%)	34.37 (0.08)	39.53 (0.07)	35.71 (0.09)	33.33 (0.09)	36.22 (0.04)
Often (%)	28.12 (0.08)	32.55 (0.07)	28.57 (0.08)	25.0 (0.09)	29.13 (0.04)
Sometimes (%)	12.5 (0.05)	11.62 (0.04)	14.28 (0.06)	20.83 (0.08)	14.17 (0.03)
Rarely (%)	15.62 (0.06)	9.3 (0.04)	10.71 (0.05)	12.5 (0.06)	11.81 (0.02)
Never (%)	9.37 (0.05)	6.97 (0.03)	10.71 (0.05)	8.33 (0.05)	8.66 (0.02)
Experienced threats of violence aimed at forcing them to beg (c.)	3.5 (1.43)	3.95 (1.17)	3.32 (1.24)	3.62 (1.40)	3.63 (1.31)
Always (%)	31.25 (0.08)	41.86 (0.07)	17.85 (0.07)	37.5 (0.10)	33.07 (0.04)
Often (%)	28.12 (0.08)	30.23 (0.07)	35.71 (0.09)	20.83 (0.08)	29.13 (0.04)
Sometimes (%)	9.37 (0.05)	13.95 (0.05)	14.28 (0.06)	20.83 (0.08)	15.74 (0.03)
Rarely (%)	15.62 (0.06)	9.30 (0.04)	25.0 (0.08)	8.33 (0.05)	12.59 (0.02)
Never (%)	15.62 (0.06)	4.65 (0.03)	7.14 (0.04)	12.5 (0.06)	9.44 (0.02)
Experienced physical harassment aimed at forcing them to beg (c.)	3.03 (1.55)	3.34 (1.41)	3.25 (1.53)	3.04 (1.33)	3.18 (1.45)
Always (%)	25.0 (0.07)	25.58 (0.06)	28.57 (0.08)	16.66 (0.07)	24.4 (0.03)
Often (%)	18.75 (0.07)	27.90 (0.06)	21.42 (0.07)	20.83 (0.08)	22.83 (0.03)
Sometimes (%)	15.62 (0.06)	18.60 (0.06)	17.85 (0.07)	29.16 (0.09)	19.68 (0.03)
Rarely (%)	15.62 (0.06)	11.62 (0.04)	10.71 (0.05)	16.66 (0.07)	13.38 (0.03)
Never (%)	25.00 (0.07)	16.27 (0.05)	21.42 (0.07)	16.66 (0.07)	19.68 (0.035)
Experienced verbal harassment aimed at forcing them to beg (c.)	3.34 (1.40)	3.55 (1.38)	3.28 (1.43)	3.62 (1.31)	3.45 (1.37)
Always (%)	25.0 (0.07)	32.55 (0.07)	25.0 (0.08)	33.3 (0.09)	29.13 (0.04)
Often (%)	28.12 (0.08)	27.90 (0.06)	28.57 (0.08)	25.0 (0.09)	27.55 (0.03)
Sometimes (%)	18.75 (0.07)	13.95 (0.05)	10.71 (0.05)	20.8 (0.08)	15.74 (0.03)
Rarely (%)	12.5 (0.05)	13.95 (0.05)	21.42 (0.07)	12.5 (0.06)	14.96 (0.03)
Never (%)	15.62 (0.06)	11.62 (0.04)	14.28 (0.06)	8.33 (0.05)	12.59 (0.02)
Experienced difficulty in terms of being allowed by others to stop begging (c.)	3.71 (1.11)	3.86 (1.12)	3.82 (1.05)	3.83 (1.09)	3.74 (1.12)
Always (%)	28.12 (0.08)	32.55 (0.07)	32.14 (0.08)	33.33 (0.09)	29.13 (0.04)
Often (%)	34.37 (0.08)	39.53 (0.07)	28.57 (0.08)	29.16 (0.09)	35.43 (0.04)
Sometimes (%)	21.87 (0.07)	13.95 (0.05)	32.14 (0.08)	29.16 (0.09)	22.04 (0.03)
Rarely (%)	12.5 (0.05)	9.30 (0.04)	3.57 (0.03)	4.16 (0.04)	7.87 (0.02)
Never (%)	3.12 (0.03)	4.65 (0.03)	3.57 (0.03)	4.16 (0.04)	5.51 (0.02)
Forced Child Begging scale	3.44 (1.15)	3.72 (1.09)	3.47 (1.00)	3.55 (1.05)	3.55 (1.10)
Observations	32	43	28	24	127

Notes: (c.) Continues variable. (%) Percentages. Standard deviations are in parenthesis.

	Forced Child Begging scale	Age	Men	Natives	Living with relatives and/or friends [^]	Living with unknown people [^]	Feeling hungry due to food unavailability the previous week	Health-related quality of life (KIDSCREEN-10)	Adverse mental health symptoms (CES-DC)
Forced Child Begging scale	1								
Age	0.19 (0.03)**	1							
Men	-0.15 (0.07)*	-0.14 (0.11)	1						
Natives	-0.52 (0.00)***	-0.20 (0.02)**	0.07 (0.37)	1					
Living with relatives and/or friends [^]	0.12 (0.17)	0.12 (0.17)	-0.17 (0.05)*	-0.08 (0.34)	1				
Living with unknown people [^]	0.42 (0.00)***	0.06 (0.47)	0.05 (0.53)	-0.32 (0.00)***	-0.51 (0.00)***	1			
Feeling hungry due to food unavailability the previous week	0.82 (0.00)***	0.10 (0.23)	-0.13 (0.13)	-0.44 (0.00)***	0.02 (0.75)	0.39 (0.00)***	1		
Health-related quality of life (KIDSCREEN-10)	-0.90 (0.00)***	-0.13 (0.12)	0.12 (0.14)	0.43 (0.00)***	-0.13 (0.14)	-0.35 (0.00)***	-0.79 (0.00)***	1	
Adverse mental health symptoms (CES-DC)	0.79 (0.00)***	0.17 (0.04)**	-0.20 (0.02)**	-0.50 (0.00)***	0.04 (0.60)	0.37 (0.00)***	0.77 (0.00)***	-0.76 (0.00)***	1

Notes: N=127 beggar children. Periods 2011, 2014, 2018 and 2022. (^) The reference category is living with parents. P-values are offered in parentheses. (***) Statistically significant at the 1 percent. (**) Statistically significant at the 5%. (*) Statistically significant at the 10%.

Table 4. Correlation Matrix. Beggar Children

	Forced by others to beg	Experienced threats of violence aimed at forcing them to beg	Experienced physical harassment aimed at forcing them to beg	Experienced verbal harassment aimed at forcing them to beg	Experienced difficulty in terms of being allowed by others to stop begging	Health-related quality of life (KIDSCREEN-10)	Adverse mental health symptoms (CES-DC)
Forced by others to beg	1						
Experienced threats of violence aimed at forcing them to beg	0.78 (0.00)***	1					
Experienced physical harassment aimed at forcing them to beg	0.54 (0.00)***	0.56 (0.00)***	1				
Experienced verbal harassment aimed at forcing them to beg	0.67 (0.00)***	0.67 (0.00)***	0.51 (0.00)***	1			
Experienced difficulty in terms of being allowed by others to stop begging	0.75 (0.00)***	0.72 (0.00)***	0.55 (0.00)***	0.61 (0.00)***	1		
Health-related quality of life (KIDSCREEN-10)	-0.80 (0.00)***	-0.81 (0.00)***	-0.67 (0.00)***	-0.75 (0.00)***	-0.76 (0.00)***	1	
Adverse mental health symptoms (CES-DC)	0.71 (0.00)***	0.69 (0.00)***	0.61 (0.00)***	0.63 (0.00)***	0.70 (0.00)***	-0.76 (0.00)***	1

Notes: N=127 beggar children. Periods 2011, 2014, 2018 and 2022. P-values are offered in parentheses. (***) Statistically significant at the 1 percent.

Table 5. Estimates. The determinants of forced child begging						
	Model I	Model II	Model III	Model IV	Model V	Model VI
	Forced Child Begging scale	Forced by others to beg	Experienced threats of violence aimed at forcing them to beg	Experienced physical harassment aimed at forcing them to beg	Experienced verbal harassment aimed at forcing them to beg	Experienced difficulty in terms of being allowed by others to stop begging
Age	0.037 (0.023)	-0.002 (0.048)	0.010 (0.492)	0.022 (0.047)	0.156 (0.048)***	-0.062 (0.050)
Men	-0.075 (0.108)	-0.231 (0.224)	0.198 (0.221)	-0.167 (0.211)	-0.034 (0.212)	-0.086 (0.227)
Natives	-0.319 (0.127)**	-0.370 (0.256)	-0.274 (0.255)	-0.516 (0.250)**	-0.379 (0.246)	-0.019 (0.265)
Living with relatives and/or friends [^]	0.537 (0.156)***	0.979 (0.326)***	0.757 (0.317)**	0.256 (0.307)	0.250 (0.307)	1.196 (0.341)***
Living with unknown people [^]	0.396 (0.140)***	0.589 (0.283)**	0.422 (0.278)	0.280 (0.279)	0.088 (0.275)	1.022 (0.296)***
Feeling hungry due to food unavailability the previous week	0.549 (0.044)***	0.755 (0.105)***	0.786 (0.104)***	0.486 (0.091)***	0.604 (0.095)***	0.918 (0.118)***
F	41.69	-	-	-	-	-
Prob>F	0.000	-	-	-	-	-
R ²	0.760	-	-	-	-	-
LR x ²	-	108.41	107.87	67.08	83.97	127.32
Prob>x ^x	-	0.000	0.000	0.000	0.000	0.000
Pseudo R ²	-	0.290	0.283	0.166	0.213	0.353
Observations	127	127	127	127	127	127

Notes: Model I presents OLS estimates with time fixed effects. Models II-VI present Ordered Probit estimates with time fixed effects. ([^]) The reference category is living with parents. (***) Statistically significant at the 1%. (**) Statistically significant at the 5%.

Table 6. Estimates. The determinants of health-related quality of life (KIDSCREEN-10) of beggar children							
	Model I KIDSCREEN-10	Model II KIDSCREEN-10	Model III KIDSCREEN-10	Model IV KIDSCREEN-10	Model V KIDSCREEN-10	Model VI KIDSCREEN-10	Model VII KIDSCREEN-10
Forced Child Begging scale	-8.050 (0.644)***	-	-	-	-	-	-
Forced by others to beg	-	-1.540 (0.532)***	-3.672 (0.590)***	-	-	-	-
Experienced threats of violence aimed at forcing them to beg	-	-1.952 (0.507)***	-	-3.923 (0.542)***	-	-	-
Experienced physical harassment aimed at forcing them to beg	-	-1.557 (0.325)***	-	-	-2.197 (0.436)***	-	-
Experienced verbal harassment aimed at forcing them to beg	-	-1.805 (0.402)***	-	-	-	-3.125 (0.482)***	-
Experienced difficulty in terms of being allowed by others to stop begging	-	-0.958 (0.572)*	-	-	-	-	-3.140 (0.747)***
Age	0.244 (0.168)	0.293 (0.179)	-0.016 (0.221)	0.006 (0.212)	0.030 (0.232)	0.408 (0.230)*	-0.140 (0.239)
Men	-0.468 (0.759)	-0.346 (0.779)	-0.461 (1.009)	0.656 (0.965)	-0.275 (1.054)	-0.030 (0.994)	-0.177 (1.083)
Natives	-1.466 (0.913)	-1.530 (0.930)	-0.112 (1.195)	0.067 (1.139)	-0.161 (1.259)	-0.013 (1.180)	0.899 (1.270)
Living with relatives and/or friends [^]	-0.001 (1.146)	-0.293 (1.200)	-1.322 (1.526)	-1.869 (1.429)	-3.788 (1.519)**	-3.547 (1.438)**	-1.996 (1.654)
Living with unknown people [^]	0.036 (1.009)	-0.268 (1.050)	-1.189 (1.332)	-1.711 (1.257)	-2.467 (1.361)*	-2.699 (1.283)**	-1.201 (1.468)
Feeling hungry due to food unavailability the previous week	-0.706 (0.469)	-0.792 (0.485)	-3.050 (0.528)***	-2.730 (0.513)***	-4.064 (0.477)***	-3.370 (0.487)***	-3.499 (0.587)***
F	71.35	50.18	35.59	39.76	31.51	36.58	29.17
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R ²	0.848	0.826	0.754	0.774	0.730	0.759	0.715
Observations	127	127	127	127	127	127	127

Notes: OLS with time fixed effects. ([^]) The reference category is living with parents. (***) Statistically significant at the 1%. (**)
Statistically significant at the 5%. (*) Statistically significant at the 10%.

Table 7. Estimates. The determinants of adverse mental health symptoms (CES-DC) of beggar children							
	Model I	Model II	Model III	Model IV	Model V	Model VI	Model VII
	CES-DC	CES-DC	CES-DC	CES-DC	CES-DC	CES-DC	CES-DC
Forced Child Begging scale	2.667 (0.556)***	-	-	-	-	-	-
Forced by others to beg	-	0.689 (0.462)	1.295 (0.403)***	-	-	-	-
Experienced threats of violence aimed at forcing them to beg	-	0.309 (0.439)	-	1.089 (0.390)***	-	-	-
Experienced physical harassment aimed at forcing them to beg	-	0.602 (0.282)**	-	-	0.803 (0.287)***	-	-
Experienced verbal harassment aimed at forcing them to beg	-	0.366 (0.349)	-	-	-	0.835 (0.338)***	-
Experienced difficulty in terms of being allowed by others to stop begging	-	-0.813 (0.496)	-	-	-	-	1.449 (0.476)***
Age	0.019 (0.145)	0.051 (0.155)	0.105 (0.151)	0.101 (0.153)	0.087 (0.153)	-0.004 (0.162)	0.158 (0.152)
Men	-1.098 (0.656)*	-1.011 (0.676)	-1.087 (0.689)	-1.443 (0.695)**	-1.148 (0.695)	-1.254 (0.698)*	-1.153 (0.691)*
Natives	-1.241 (0.788)	-1.250 (0.806)	-1.664 (0.817)**	-1.805 (0.820)**	-1.631 (0.831)*	-1.795 (0.828)**	-1.998 (0.810)**
Living with relatives and/or friends [^]	-0.086 (0.989)	-1.256 (1.041)	-0.712 (1.043)	-0.334 (1.029)	-0.150 (1.000)	-0.847 (1.010)	-0.728 (1.055)
Living with unknown people [^]	-0.087 (0.872)	-0.259 (0.911)	0.276 (0.910)	0.568 (0.905)	0.718 (0.898)	0.847 (0.901)	0.068 (0.936)
Feeling hungry due to food unavailability the previous week	1.398 (0.405)***	1.362 (0.420)***	2.130 (0.361)***	2.198 (0.369)***	2.474 (0.315)***	2.394 (0.342)***	2.111 (0.374)***
F	29.17	20.34	25.47	24.72	24.72	24.22	25.15
Prob>F	0.000	0.000	0.000	0.000	0.000	0.000	0.000
R ²	0.715	0.717	0.687	0.680	0.680	0.676	0.684
Observations	127	127	127	127	127	127	127

Notes: OLS with time fixed effects. (^) The reference category is living with parents. (***) Statistically significant at the 1%. (**) Statistically significant at the 5%. (*) Statistically significant at the 10%.

Appendix

Table AI. Number of interviews with beggar children

Period	Number of beggar children approached by the research team	Beggar children begging without selling items or performing (singing, playing musical instruments) or washing car windows	Beggar children begging and/or selling items and/or performing (singing, playing musical instruments) and/or washing car windows	Beggar children begging in groups	No interviews due to beggar children unwillingness to participate and/or communication constraints	Number of interviews
November and December 2011	81	53 (65.43%)	28 (34.56%)	16 (19.75%)	49 (60.49%)	32 (39.5%)
November and December 2014	96	73 (76.04%)	23 (23.95%)	29 (30.20%)	53 (55.20%)	43 (44.79%)
November and December 2018	83	56 (67.46%)	27 (32.53%)	18 (21.68%)	55 (66.26%)	28 (33.73%)
November and December 2022	75	57 (76.00%)	18 (24.0%)	17 (22.66%)	51 (68.0%)	24 (32.0%)
Total	335	239 (71.34%)	96 (28.65%)	80 (23.88%)	208 (62.08%)	127 (37.91%)

Notes: Beggar children were identified in central avenues, market streets, underground stations, popular tourist destinations, churches, and other busy locations among other places in Athens. Percentages are given in parentheses. .

Figure 1. The relationship between forced child begging and health-related quality of life, as well as mental health symptoms for beggar children

