Basic Instinct?

Examining the spatial links between bereaved parents and their child’s burial site in Sweden

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ABSTRACT  Currently, necro-geography is a fringe topic in population geography. However, significant spatial links between the living and the deceased are emerging as more research on the topic becomes available. This study investigates the effects the death of a child has on the migration patterns of its surviving parents. The empirical data used consists of all parents in Sweden aged 20 to 50 years old in the year 2000 who had a child aged 0 to 17 years, including parents whose child passed away that same year. The results reveal that bereaved parents are more likely to migrate than non-bereaved parents. However, the migration distance undertaken by the bereaved is predominately across shorter distances with a gradual shift towards longer migrations over the course of ten years following the death of their child. This study is the first such analysis on a national level adding new insights into migration and its links to necro-geography.

Keywords:  mobility; migration; necro-geography; bereaved parents; mourning behavior

Introduction

Migration is a fundamental aspect of population geography, comprising an important part of how societies are shaped (Newbold, 2010). On an individual level, migration is a process through which people can change their own lives. Most empirical research supports the idea that people migrate in order to advance their social or economic status (Fisher and Malmberg, 2001; Lundholm, 2010). Common answers as to why people migrate typically are a new job or school, better housing opportunities or improved amenities (Boyle et al., 1998). Similarly, reasons as to why people do not migrate include existing physical and social ties to a place (Fisher et al., 2000), policies (Salt, 1989), or socio-economic restrictions (de Haas, 2010). Looking at the contribution made by geographers to migration it becomes apparent that the emphasis has been on living individuals (Marjavaara, 2012). This is understandable as it is the living that are mobile and capable of making conscious decisions regarding migration. Despite this, the inclusion of the deceased into the study of population geography could prove relevant for today’s society as significant spatial links have been found between the living and the dead (Maddrell and Sidaway, 2010); implying that the geography of the dead might have spatial consequences for their survivors.

Deceased individuals do not necessarily stop influencing the behavior of the living simply because they are dead (Harper, 2010). Mourning and grief are important aspects related to death and dying and capable of affecting the bereaved to various degrees (Field et al., 2005; Klass, 1993). Time has always been considered central to mourning, and previous theoretical work has described various stages experienced by the bereaved (Bowby, 1980). However, besides its time related factor, mourning also has a spatial context (Maddrell and Sidaway, 2010) where the spaces of the dead have significant effects on the living. The time and space link between the dead and the bereaved means that at least in the initial stages following death, the living must maintain a certain proximity to the dead (Kelaher and Worpole, 2010). Francis et al. (2000) point out how neglected bereaved behavior is in terms of location of and visits to the burial site. The authors do examine extensively the connection of the dead and how it is maintained through visits. While the effect the deceased have on the mobility of the living is discussed, it has not been quantified or measured empirically in
a comprehensive way or on a national scale. This lack of scientific research on the subject can be problematic as understanding the effect the deceased have on the migration of the bereaved can yield important findings regarding the reasons behind their mobility actions.

The aim of this study is to analyze whether the death of a child affects the future migration of its bereaved parents. More specifically, to test a hypothesis that bereaved parents are more immobile than their non-bereaved counterparts due to an attachment to the burial site. By analyzing longitudinal quantitative data from the entire Swedish population, it is hoped that new insight will be provided on whether or not dead individuals continue to have an effect on the mobility of the living, and show that research on people after they have passed away could be an important inclusion within the field of population geography. Specific research questions addressed are:

a) Are parents who experienced the death of a child more immobile than their non-bereaved counterparts?
b) Do the effects on migration change according to the age of the deceased child?
c) Is there a time-decay component associated with migration of parents and death of a child?

Theoretical Framework

Migration is the essence of population geography (Newbold, 2010) and it has been contextualized into theory for over a century. Starting with Ravenstein’s Laws of Migration (1885) and continuing throughout the 20th century with important works by numerous scientists, migration theory has helped expand much empirical work on migration (de Haas, 2010). In general, it has been shown that migration is largely a movement for the benefit of the migrant (Lundholm et al., 2004; Newbold, 2010), it occurs in line with various push and pull factors (Lee, 1966) and the benefits of moving to a new place are weighed against the costs. In the costs versus returns theory put forth by Sjaastad (1962), called the human capital theory, it is not only physical and monetary costs that are accounted for but also the psychological ones such as family separation. Psychological costs typically relate to the breaking of social bonds created over one’s lifetime and can be quite significant. Indeed social attachments to people who live in a particular place are found to be stronger than the physical attachments to that place (Hidalgo & Hernandez, 2001).

Social attachment to individuals especially close kin is a biological trait that developed through our long evolutionary past (Bowlby, 1969). Physical proximity, or the possibility of reunification in the case of separation, is central of Bowlby’s attachment theory. That is especially true in parent child relationships (Cassidy, 1999). In today’s western society a couple has a limited number of children in their lifetime adding importance to the parent-child relationship. According to Davies (2002), a child becomes part of the mother’s identity, and without the child the mother would not be a mother. It has been shown that the proximity between a child and its parents is maintained even in cases where the family disintegrates through divorce or separation (Stjernström and Strömgren, 2012). The intimate link between the identity of parents and their child can also be observed in cases where the child has passed away. Death revokes the possibility of maintaining physical proximity, at least in the traditional sense (Field et al., 2005). Parents who have lost a child will continue living with the deceased as part of their lives (Walter, 1996). While the loss is permanent and often compared to amputation since the child was an extension of the parent (Klass, 1993), the parents will continue to identify themselves as parents even though parents of a dead child (Garattini, 2007; Walter, 1996). Beyond this, there appears to be a fear of forgetting the dead. As reported by Garattini (2007),
parents promise themselves and are determined to always remember the deceased. A common practice showing remembrance has been shown to be taking fresh flowers or other gifts to the burial site (Kellaher et al., 2005). While help and support for bereaved parents can be found in existing relations such as close kin, or specialized grieving support groups (Riches and Dawson, 1996), such studies are based on the idea of letting go and coming to terms with the death (Prendergast et al., 2006). However, some models on grief which focus more on continuing the bond with the deceased have been shown to better explain the behavior of some bereaved, especially bereaved parents. According to Klass (1993) continuing the bond with the deceased child becomes important in the bereaved parent’s mourning process by allowing to focus more on change and adaptation to the new way of life and not so much on the return to the way things were before. The author focuses on the inner representation of the child by the parents in the attempt of continuing the bond with the deceased child.

The relationship between deceased children and their bereaved parents can further be contextualized through existing mourning theory. Attachment to the deceased and mourning theory has been put forth by Bowlby (1969; 1980) and been used in empirical studies ever since. According to Bowlby the initial period following death is classified as one of refusal to believe that death has occurred or more specifically, a failure to understand the finality of death. Within the time frame of a few months the bereaved enter another stage of mourning with the acceptance that the deceased will not return. It is a stage closely followed by another where objects and places symbolizing the deceased become important in the attempt to continue the bond (Field et al., 2005). It is at this stage that the burial site can become most important in the mourning process. A final stage in the mourning process detailed by Bowlby consists of a shift from the need for physical proximity to a more psychological proximity. During this stage the bereaved considers its identity continually bound to the deceased and as a result the burial site might become less relevant. Throughout the long term mourning process it is never seen as the bereaved attempting to live on without the deceased but instead it is understood as the living attempting to continue to incorporate the deceased into their life (Walter, 1996), and that can be either through physical proximity or later through psychological proximity. It becomes apparent that mourning is not just a time based event (Maddrell and Sidaway, 2010); it has a spatial component where at times the burial site can play an important role in incorporating the deceased in the life of the bereaved. It then becomes important to properly understand the burial site in terms of its connections to the living through visitation and other associated behavior.

While burial sites themselves have been the focus of social scientists for many centuries (Davies, 2002), the connection of the burial site to the living kin has been less discussed in the scientific literature. Francis et al., (2000) in their work on user perspectives of cemeteries have shown the importance of burial sites on personal and community life. In general, burial site visitations are mostly performed by family members of the deceased. A visit to the grave represents a release of emotions that may have been building for days, weeks, or months. According to the authors, there is a reoccurring belief among grave visitors that since the loved one is physically present there, it’s able to see and hear the activities of the living. The relationship with the deceased is constantly remembered through cemetery visits (Wojtkowiak and Venbrux, 2010) and tending the burial site is also seen as a substitute for physical contact with the deceased and becomes part of the bereaved visitation custom (Woodthorpe, 2010). An ideal burial site is considered to have a few key characteristics one of which is proximity to the living in order to facilitate established practices
(Francis et al., 2000). A fact reinforced by other studies showing the deceased preferring to be buried on family plots in order to be close to surviving kin (Gittings and Walter, 2010), or in the popularity of taking cremated remains home so the bereaved are able to be closer to their deceased family members (Kellaher and Worpole, 2010). When it comes to maintaining proximity to the deceased, cremation can add new possibilities otherwise not there. Cremation has the potential to increase the mobility of the deceased (Prendergast et al., 2006) possibly making it easier for survivors to maintain physical proximity to deceased loved ones. After cremation the deceased is no longer in a state of disintegration and the object of storage, the urn, is easily moved or transferred to other locations. However, the removal and disposal of cremated remains is often under the control of the local legislative environment. For example, the UK, Finland, France and Spain do not have laws prohibiting the removal and private disposal of cremated remains whereas Sweden, Denmark, Germany and Italy do, meaning that cremated remains usually stay at the crematorium, columbarium or cemetery (Prendergast et al., 2006). What happens to the ashes once removed from the crematorium can also be seen as indicators of bereaved behavior towards the dead loved ones. Kellaher et al., (2005) have shown that in certain cases the scattering of ashes was not undertaken as there would be no physical location left for future visitations by surviving family, indicating that physical proximity, to some extent is relevant for the bereaved.

As stated earlier, the unique characteristics of parents’ identity and continuing the bond with a deceased child are apparent. Following that, burial sites and their significance to the bereaved emphasized proximity as a potential important factor in the lives of surviving kin. It comes into view that a child’s burial site could have important implications for the lives of its surviving parents that extend beyond the extensively documented emotional and psychological effects. As an example, Francis et al.,(2000) briefly touch on the possible effects that a child’s burial place might have on parents’ migration patterns when they describe Greek Cypriot parents choosing to return to England to be in close proximity to their daughter’s burial site. Kellaher et al. (2005) have shown that grave visitation practices such as frequency of visits and grave decorations are taken to more extreme levels in cases of deceased children. More specific, attitudes towards deceased children and infant burial sites have been addressed by Garattini (2007). In her study the attitudes of parents, especially mothers, is being analyzed longitudinally to demonstrate the overlooked but important connection with infant burial sites in Ireland. The author’s findings suggests that attempts to remain connected to the burial site through visits, maintenance of site, and personal decoration are very common and can extend for decades after the death (Garattini, 2007). Such studies begin to show a spatial relationship between parents and their deceased child that warrants further consideration.

Summing up the theoretical background as well as empirical studies on migration it can be concluded that while understanding all the motives leading to migration it is equally important to understand the reasons an individual might have in deciding not to move. Attachment to a place can play an important role in the inclination not to migrate. An extension of place attachment is the social attachment an individual has within a particular place. These social attachments usually relate to connections to living individuals. That must not always be the case as existing literature on attachment to the deceased has shown important implications into the behavior of the living. Attachment to the deceased is strongest in parent-child relationships since it is rooted in our evolutionary past (Bowlby, 1969). Overall, the literature appears to support a hypothesis that bereaved parents are more immobile than non-bereaved. It might be argued that such a topic belongs to a more general area of geographic inquiry where severe life events have consequences
for life and mobility. However, the spatial links between the unavoidably fixed geography of the
dead and the mobility of the living make it differ from other life events such as divorce, becoming
unemployed or being diagnosed with a life-altering disease where no such unique fixed geography is
present. Consequently, it is hoped that an empirical study quantifying the effects of a child’s burial
site on the migration of its surviving parents will shed more light on the subject and prepare the way
for future studies linking necro-geography to the mobility of the living.

The Swedish context

In regards to Sweden much empirical work has been done to show and understand modern
migration trends. In Sweden people move on the average eleven times throughout their lifetime,
although that includes mostly short distance moves within the same municipality (Statistics Sweden,
2012). The inclination to migrate is not equal in all regions and to all individuals. Geography has been
found to influence migration decisions in Sweden. People are more likely to migrate away from
manufacturing or industrial areas and towards university towns or large metropolitan areas
(Borgegard et al., 1995; Fisher and Malmberg, 2001). The availability of jobs has been found to have
significant effects on migration with the inclination not to move being higher if there are sufficient
job opportunities within commuting distance (Lundholm, 2010). Social attributes such as age have
also been shown to affect migration propensity. Due to the accumulation of stronger social ties older
people along with the married and couples with child are more likely to stay than younger, single or
the childless who have a higher inclination to migrate (Lundholm, 2010; Fisher et al., 2000;
Lundholm et al., 2004). The annual migration rate between Swedish labor markets is around 2.5%
but drops significantly after the age of 35, and the propensity to move peaks around the age of 21
(Fisher and Malmberg, 2001). These social attributes affecting migration are in line with more
established life-cycle migration theory (see Rossi, 1980). While understanding who is most likely to
migrate and when, it becomes equally important to understand impediments to mobility. Social ties
and attachments to people have been found to have significant effects on people’s propensity to
stay (Fisher and Malmberg, 2001). For example Stjernström and Strömgren (2012) have found the
immobility of a divorced or separated parent to be the result of the desire to remain in close
proximity to one’s offspring. Nonetheless as discussed earlier, the attachment to people and its
effects on immobility does not have to solely incorporate living individuals, it can also take into
account deceased individuals such as close relatives that have passed away.

While child mortality has decreased in Sweden over the decades (Eckstein, 1999), it is still a tragedy
affecting many individuals. According to Statistics Sweden (2013) 1,124 children died in Sweden in
1990 and that number has been declining gradually each year after that. In 2000, 527 children
between age 0 and 17 passed away (ASTRID, 2013) and an average of 538 children aged between 0
and 17 years have died annually in Sweden from 2000 to 2012 (Statistics Sweden, 2013). Consequently,
over one thousand parents are directly affected by such tragedies each year. A sizable
demographic that potentially represents an extreme end in the behavior of bereaved kin and their
attachments to the deceased, making it a suitable group in studying population mobility and its
bearing on necro-geography.

The connection between migration in Sweden and the burial remains of the deceased has been
discussed previously. Berglund (1994) acknowledges that as a result of increase mobility in today’s
Swedish society an updated view regarding burial policies is needed to focus more on the surviving
kin instead of the dead. More recently, Marjavaara (2012), while discussing post-mortal mobility and people’s preferences for their own resting place, advances the notion that there might be a significant connection between the deceased burial site and the mobility of its surviving kin. As seen in other countries such as the UK, people do choose to be buried close to their surviving relatives (Gittings and Walter, 2010), with increased mobility among the living population problems do arise in places such as Sweden where Swedish burial law states that the remains of the deceased, including cremated remains, once buried are not allowed to be moved for a period of at least 25 years (Sveriges Riksdag, 2013).

Cremation has increased in popularity in Sweden just like in much of modern society. According to the Swedish Federation of Cemeteries and Crematoria, SKKF (2011), 70,711 bodies were cremated in 2011, which account for 78.6% of the deceased in that year. The increase in number of bodies being cremated has been observed annually since 1936 when only 4.5% of bodies were cremated (SKKF, 2011). In the UK and US for example the popularity of cremation has been accompanied by an increase in the removal of cremated remains from crematoriums or columbaria by surviving relatives in order to maintain a physical connection with the deceased through proximity (Prothero, 2001; Prendergast et al., 2006; Kearl, 2004). The absence of such post-mortem mobility due to Swedish burial law can therefore result in a separation between the deceased and surviving relatives. Unless decisions made by surviving relatives reflect their need to remain close to the deceased family member. Such decisions would likely be choosing not to move despite the fact that a move might result in improved social or economic status, such as access to a dynamic labor market, possibility to engage in higher education, or better schools (Fisher and Malmberg, 2001). A study quantifying such phenomena would be relevant for today’s society as it might show existing policies that while useful in the past might no longer be in today’s environment. Such policies could be the current Swedish burial law with its emphasis on the deceased instead of the surviving relatives.

Method and data

This study is based on quantitative micro-data on all living parents in Sweden aged 20 to 50 years old who had a child between 0 and 17 years of age during the year 2000. The year 2000 is chosen as it does not represent a significant deviation from the average number of child deaths in the immediately surrounding years and it is the most recent data available that allows for a longitudinal analysis in changes of residence for the following 10 years. The dataset used contains micro-data on all individuals in Sweden, it includes geo-references with 100m resolution. There is no representative sample as the sample used is comprised of all living individuals with the matching characteristics, strengthening the significance of the results obtained. In total, 527 children aged between 0 and 17 died in the year 2000 (ASTRID, 2013). The dataset consist of a total of 1,877,693 individuals, 983 of which had experienced the death of a child in the year 2000 (see figure 1). Because the children are connected to their parents in the dataset it was possible to discern the movements of parents with a deceased child in 2000 from those without. Parents who had experienced the death of a second child during other years are not identified as it is considered an even more marginal phenomenon consisting of very few individuals, if any. Considering the dataset does not include information regarding the burial location of the deceased child, an assumption is made that the child is buried in close proximity to its surviving parents in the year of death. The exact resting place of the deceased child notwithstanding, each subsequent change in residence by the parents after the year 2000 will likely signify a move away from the child’s physical remains. As a consequence, all individuals in the
sample are followed for a period of ten years until 2010 during which changes in residence are recorded. For this study a change in residence is considered to occur if the move was more than 75 km away from the previous residence. This is done as changes in residences of a lesser distance are not considered to be problematic in cases where proximity to a burial site must be maintained, due to the feasibility of commuting. As previous literature has shown certain attributes to strongly influence the propensity to migrate, the dataset includes information on education, sex and age of the parent as well the age of the deceased child in the year 2000.

This study retrieved its data from individuals matching certain characteristics in only one year; as a result the total number of parents who have experienced the death of a child is low. Out of over 1.8 million parents who had a child aged 0 to 17 in 2000 only 983 experienced the death of a child during that year. Therefore the results concluded from this study should be considered only a first stepping stone in a continuum of future studies on the subject all aiming to better understand the spatial relationship between deceased family members and their living relatives.

Figure 1. Total population and number of parents in Sweden in 2000. Source: ASTRID (2013); Statistics Sweden (2013).

First, a descriptive analysis of the data involved is provided showing the overall composition of the sample in terms of the number of people affected by the death of a child and how it relates to migration. Then the inclination to migrate is tested in a logistic regression model. The exposure variable, death of a child, together with the control variables: sex, age and education of parent are included in the model as independent variables. Such variables have been shown to be strongly correlated to migration in Sweden, and can therefore be expected to affect the migration rate of bereaved parents. Education is divided into two groups: lower education consisting of all education up to and including secondary level, and higher education consisting of all post-secondary education levels. The age of the parent, in the year 2000, is divided into three categories each encompassing approximately one decade, 20 to 29 years, 30 to 39 years and 40 to 50 years. Following that, migration propensity is also examined in terms of how it relates to the age of the deceased child. And finally, differences in migration distance between non-bereaved and bereaved parents are also examined to identify any variation in the migration range among the two groups.
Results

As stated earlier, the total sample size consists of 1,877,693 individuals, 983 of which have experienced the death of a child in 2000. In total 527 children aged 0 to 17 died in 2000, 71 of which have only one parent in the dataset.

Who is more mobile?

The analysis showing the annual migration rates for the next ten years shows some differences between the two groups examined. Figure 2 shows the percentage of individuals in the dataset that have either not changed residence or moved less than 75 km away each year from 2000 until 2010. A slightly smaller proportion of bereaved parents have either stayed or moved less than 75 km each year compared to their non-bereaved counterparts, making the bereaved parents slightly more mobile than the non-bereaved ones. That difference between the mobility of bereaved and non-bereaved parents can be observed starting with the first year and continuing throughout the ten year period. The percentage gap between the two groups can be seen to gradually increase each year for the entire period under examination, by 2010 over four percent more of bereaved parents have moved at least once in the last decade compared to non-bereaved parents.

![Figure 2. Percentage of individuals not undertaking any move greater than 75 km. Source: ASTRID (2013).](image)

In order to statistically compare the inclination to migrate between bereaved and non-bereaved parents, and to understand such differences over time, a logistic regression was performed examining the propensity to migrate the first year, first five years, and ten years following the death of a child. The regression controls for variables such as the sex, education and age of parents. The results can be seen in Table 1 below.

The B values are the un-standardized beta weights and they are used to predict the dependent variable from the independent variables. Higher values in B are associated with a greater probability of migrating, whereas a negative number is associated with a decrease in the probability of migrating holding all other predictors constant. The number of cases examined each period (N) is seen as declining, this is the result of excluding from the analysis missing data regarding residence over the years, possibly due to individuals passing away or moving to another country.
The control variables in the regression show some significant results. Controlling for individual differences in all other variables, being a woman decreases the probability to migrate over distances greater than 75 km, but just slightly as compared to men. On the other hand, as expected, having a higher education increases the likelihood of migrating. This means that individuals with a college education are more likely to migrate than individuals with only secondary or lower education. The effect of age on migration is also in line with other previous works showing that the probability to migrate decreases with age. Parents in their thirties are less mobile than their counterparts in their twenties; similarly, parents in their forties are less mobile than parents both in their thirties and their twenties. That pattern can be observed for all three time periods examined.

Table 1. Logistic regression estimates of the odds of being a migrant. Source: ASTRID (2013).

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<tr>
<td>Non-bereaved parent (ref)</td>
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<tr>
<td>Bereaved parent</td>
<td>0.612**</td>
<td>0.367**</td>
<td>0.474***</td>
<td>0.212</td>
<td>0.135</td>
<td>0.110</td>
</tr>
<tr>
<td>Man (ref)</td>
<td></td>
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</tr>
<tr>
<td>Woman</td>
<td>-0.177***</td>
<td>-0.139***</td>
<td>-0.089***</td>
<td>0.014</td>
<td>0.008</td>
<td>0.006</td>
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<tr>
<td>Low education (ref)</td>
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<tr>
<td>High education</td>
<td>0.357***</td>
<td>0.258***</td>
<td>0.214***</td>
<td>0.015</td>
<td>0.008</td>
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<td>Age 20-29 (ref)</td>
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<tr>
<td>Age 30-39</td>
<td>-0.660***</td>
<td>-0.611***</td>
<td>-0.542***</td>
<td>0.018</td>
<td>0.010</td>
<td>0.009</td>
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<tr>
<td>Age 40-50</td>
<td>-1.168***</td>
<td>-0.985***</td>
<td>-0.787***</td>
<td>0.020</td>
<td>0.011</td>
<td>0.009</td>
</tr>
<tr>
<td>Constant</td>
<td>-3.774***</td>
<td>-2.574***</td>
<td>-2.248***</td>
<td>0.017</td>
<td>0.010</td>
<td>0.009</td>
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N                           | 1,852,237 | 1,827,737 | 1,792,417 |
Model chi-square            | 3447 | 7584 | 6835 |
-2 Log likelihood           | 224400 | 587600 | 788453 |
Nagelkerke R square         | 0.016 | 0.015 | 0.011 |

Notes: N=population of parents (20-50 years) who had a child (0-17 years) in 2000.
***p<0.001, **p<0.01, *p<0.05.

In terms of whether the death of a child affects the mobility of its surviving parents, the logistic regression shows results matching the descriptive statistics presented above. Controlling for individual differences in the other variables, the death of a child increases the probability of a parent to migrate; making bereaved parents more likely to migrate than their non-bereaved counterparts. The results are statistically significant and apply to migration during the first year, first five years and ten years following the death of the child. Among the three time periods examined, it appears that the inclination of bereaved parents to migrate is strongest during the first year following death, and just slightly less so after five and ten years. Overall, the regression reveals that some statistically significant differences do exist between bereaved and non-bereaved parents and those differences hold for a period of ten years.
The age of the child matters

The mobility of the bereaved was also analyzed in relation to the age of the diseased child (see figure 3). Four different classes were created according to the age of the child at time of death. The four classes are divided as follows: parents whose child died before their first birthday (N=472), whose child died at the age of one (N=99), at the age of two to 12 years (N=236) and at the age of 13 to 17 years (N=176). The division was made in such order as to separate teenagers from younger children and from infants, but also to have aggregated numbers since some age groups consisted of very few parents.

![Diagram]

Figure 3. Percentage of individuals not undertaking any annual moves greater than 75 km in relation to the age of the deceased child, for three different time periods. Source: ASTRID (2013)

Each age group shows a gradual decline over the years, as might be expected given that figure 2 above also showed a gradual decrease in the number of all non-movers over the years. Parents who had experienced a child die in their teenage years (13 to 17 years old) have the highest percentage of non-movers for all three time periods. Additionally, for parents whose child died at the age of one, the percentage of non-movers drops most during the first year following the event whereas in the other age groups non-movers decrease more gradual throughout the ten year period. While the migration behavior of bereaved parents appears to differ slightly according to the age of the deceased child, it is important to keep in mind that some age groups are comprised of few individuals; most notably parents whose child died at the age of one number below one hundred. In contrast, age group zero is the most numerous class made up of more than 450 individuals. Therefore caution is advised before drawing any generalizing conclusions in relation to migration and age of deceased child.

A temporal component

The majority of both bereaved and non-bereaved parents in the dataset count as non-movers, only 5.87% of non-bereaved and 9.99% of bereaved have migrated 75 km or more in ten years since 2000. However, differences in migrations between the two groups of parents can also be observed when analyzing those movers alone and more specifically looking at how far the new residence is from the initial residence in 2000. To begin with, the majority of parents who have moved whether bereaved or not, have moved only once within the ten year period tested. When comparing all
movers in the dataset, 74.5% of non-bereaved parents and 70.5% of bereaved have moved only once in ten years. Fittingly, the next largest percentage group is for individuals who have moved twice from 2000 until 2010, 20.0% of non-bereaved parents and 22.9% of bereaved. Figure 4 shows the distance between new and previous residences for three different periods: between 2000 and 2001, 2000 and 2005 and between 2000 and 2010.

![Figure 4](image-url)

Figure 4. Distance between original residence in 2000 and residence in a.2001, b.2005 and c.2010; excluding moves less than 75 km. Source: ASTRID (2013).

Each column representing non-bereaved parents in the respective three periods examined is similar to the others; showing that the moves for all non-bereaved parents are comparable whether over a period of one, five or ten years. Additionally, among the non-bereaved parents, over 50% of moves are over the distance of 200 kilometers throughout the three timeframes shown. In contrast to that, the range of 75 to 100 km represents a small percentage of the overall non-bereaved movers. This means that excluding individuals which have moved less than 75 km, the majority of non-bereaved parents have moved over distances greater than 200 km. That is not the case among the bereaved parents group. During the first year after parents have experienced the death of their child the largest percentage, almost 40%, of movers appear to have moved within the range of 75 to 100km. Additionally, long distance movers, those moving over 200km away, make up a much smaller percentage of the total group, a little over 25% (see figure 4a). This shows that in contrast to the non-bereaved group, the majority of bereaved parents who move do so over distances less than 200 km. However, that pattern appears to change over time. A gradual shift among bereaved parents towards longer distance moves, over 200 km, can be observed throughout the three periods, as indicated by the dashed line in figure 4. By 2010 bereaved parents living more than 200 km away from their 2000 residence have come to make up more than 50% of the total, resembling the non-bereaved column. In fact the similarity between the two columns for the 2010 year is consistent for each range accounted for. This indicates that the moving patterns of bereaved parents come close to resembling the patterns of non-bereaved parents but only after a ten year period; hinting at a time component for the effects a deceased child has on the migration distance of its surviving parents.

**Discussion**

One might expect the mobility of bereaved parents to be more limited than that of non-bereaved parents given the need for close proximity and attachment to the burial site discussed in an earlier section. However the results presented above show the opposite effect. To begin with, more
bereaved parents appear to undertake migration over distances greater than 75 km than non-bereaved and that pattern can be observed starting with the first year following the death of the child. This indicates the immediate impact the tragedy has on the mobility of the parents. Additionally, this difference in the mobility behavior of the bereaved is increasing with each passing year demonstrating that the death continues to influence mobility for at least up to ten years. The regression model validates these results. The model controls for background variables that have been shown by other studies to impact migration rates, variables such as the age and education of the parent. Migrations over 75 km are more likely to be undertaken by parents who have experienced the death of their child than parents who have not, even after controlling for these background variables. This might be related to the terrible nature of the event. Confronting the death of one’s child is understandably a very traumatic experience; such trauma could be associated with a need to change many aspects of a parent’s life including residence as they may serve as reminders of the recent painful event. Additionally, the stressful event might result in increase divorce rates among the parents which in turn result in a move by at least one parent. Furthermore, the results are on an aggregate level and it does not mean that individual cases where parents are highly immobile do not prevail on a more local scale.

The age of the deceased child does appear to affect migration although not to a great extent. No continuous trend on migration between the four age classes has been observed. The oldest age class appears to also have the highest percentages of non-movers including no migrations at all over 75 km during the first year following death. This might indicate a slightly stronger attachment to the burial site of older children as compared to that of younger ones, perhaps linked to psychological factors related to more years spent forging a parental identity that is irreversibly bound to the child. However, this issue needs further investigation as mourning behavior is inevitably complex and varied and the results revealed in this study related to the age of the deceased child are based on a limited number of cases. Another noticeable difference among the age classes is the relative sharp decline in non-movers among the one year old age class. Between the first and fifth year following the death of their one year old child, non-movers appear to decline more drastic compared to the other age groups. This might hint at more complicated bereaved behavior where acceptance of the infant’s death and trauma associated with it has a time factor not found in other age classes.

Regarding a time-decay component for the migration patterns of the bereaved, the migration distance undertaken seems to support such a phenomenon; most notably, bereaved parents appear to migrate shorter distances than non-bereaved but only in the initial stages following death. Since the resulting migration pattern for non-bereaved parents is based on the entire population of parents aged 20 to 50 years old, those migration distances can be considered a benchmark for the comparison to the bereaved. For 2001 the migration patterns for non-bereaved show that the majority of parents who move more than 75 km do so at distances greater than 200 km. On the other hand, the results show that the majority of bereaved move at distances less than 200 km. A distance of up to 200 km can be considered well suitable for commuting by car in one day in order to facilitate a burial visit. Therefore, the frequency of shorter migrations among the bereaved parents can possibly be considered an effect of the fixed geography of the deceased child and the need to maintain relative close proximity to limit separation anxiety. As discussed earlier, Sweden’s burial law does not allow for a deceased’s remains to be moved for a period of at least 25 years following death. Therefore the results on migration distance undertaken by the bereaved in the first year following the tragedy complement the few studies that are currently addressing, albeit indirectly,
the importance of proximity of a child’s burial site to the surviving parents. The link between short distance migration and a deceased child can be further explained by the fact that over time bereaved parents show a gradual increase in moves of longer distances. As indicated by the results above, the migration patterns of bereaved parents resemble those of the non-bereaved ten years following the death of the child. While some studies have shown the mourning process of bereaved parents to last decades (Garattini, 2007; Walter, 1996), this study shows that the degree to which a child’s death can influence the migration distance of the bereaved does have a time-decay factor of approximately ten years.

Conclusion

A small body of emerging literature has shown necro-geography to have important spatial implications into the lives of the living. The desire by the deceased to be buried on family plots (Gittings and Walter, 2010) or the wish of surviving family to keep cremated remains home (Kellaher and Worpole, 2010) are all examples pointing to the importance of proximity in the relationship between the deceased and living kin. Further, Francis et al., (2000) have linked migration with proximity to the deceased when they mentioned one case where bereaved parents are relocating across national borders in order to be close to their child’s burial site. These findings are based on few cases; no such behavior has been analyzed on larger scales including at a country level. This study adds to the existing body of literature by revealing the migration behavior of bereaved parents on a national scale. It also has important implications as it complements other studies that point to the long term effects the death of a child has on its surviving parents. While such studies point to either burial site maintenance (Garattini, 2007), visiting behavior (Francis et al., 2000) or continuing the bond with a deceased child through a psychological inner representation (Klass, 1993), this study adds mobility to the long term impacts the death of a child has on the parents.

The findings on the distance undertaken by those who migrate also show compelling revelations. While revealing that bereaved parents are more likely to migrate over shorter distances but only in the initial years following the death of their child, this study serves to confirm the final stages in mourning described by Bowlby (1980). Mourning behavior in the long term is theorized to gradually shift from a need for physical proximity to the deceased to a more psychological proximity where the burial site might play a more minor role than an inner remembrance of the deceased. If physical proximity becomes less important over the years, then observed migration behavior should reflect that, and the findings of this study do indeed support such predictions with qualitative, national level data.

Many other unanswered questions remain regarding the mobility of bereaved parents. In addition to movements away from initial residence, returns can obviously reveal important aspects of place attachment; something that has not been addressed in this study. Further, the mobility of bereaved parents may differ according to geography. Sweden is geographically a very diverse country. Mobility might be different in the north where cities and towns are scattered over great distances than in the south where densely populated areas make moving to another locality nearby more likely. At the same time, this study does not attempt to explain the individual reasons for the migration patterns uncovered. For example, it is possible that increase divorce among the bereaved parents resulting from the tragedy account for a large portion of migrations undertaken following the event. A separate and complementary analysis looking only at bereaved parents and the interaction between
such variables would help further explain the reasons behind the migration behavior observed here. Lastly, there is the issue of the unknown location of the child’s burial site. The assumption made here is that the child was buried in close proximity to its residence at time of death. If a large portion of the deceased children would have been buried elsewhere, one would expect to see a spike in parents’ migration in the first year following the death in order to relocate alongside the child’s remains. Not only has no such spike been observed, but the proportion of migrants gradually and consistently increases over the ten year period. While further qualitative studies on the subject will help reveal information regarding the exact burial site of the child, the applicability of those results to the wider population will be in question. As a result the need for quantitative databases such as ASTRID to include burial site location and other related data becomes more pressing. It is hoped this study goes a long way in showing the further possibilities should this information be recorded in the future.

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