

Chapter Five

Notes Towards a Theory of Relationships and Health

In this chapter, I want to move out from my data to propose a way to think about how marriage improves the health of the married. I will proceed as follows. To start, I will revisit my main findings and use them to clarify what is meant by health. Then I will argue that there are two general ways in which the death of a spouse – or a change in household composition more generally – can affect health. First, a change in household composition will alter the household production of many goods, and this may affect the health of the individuals therein; the ways in which this may occur bear elaboration. But, I will contend, the patterns that were shown in the preceding chapters support a second, stronger interpretation. I will argue again that it is important to understand relationships as a form of general capital. This capital functions primarily through changing the ways the household deals with uncertainty – or, more technically, by improving allocative efficiency. That is, spouses function by helping in the higher-order planning and execution of broad life decisions. This line of argument may appear paradoxical: will I claim that spouses seem to help with planning, but not day-to-day choices? I will suggest that this paradox comes from looking at behavior at an analytically suboptimal level of detail. Finally, I will

conclude with some thoughts on the role of relationships more generally in the production of health.

5.1 Reviewing Empirical Results

This dissertation provided three novel empirical findings. I found that the impact of marriage varied as a function of how sick an individual was, with healthier individuals being *more* sensitive to the loss of a spouse. I found that both men and women suffered a real decrement from the loss of a spouse – that the effect was not as one-gendered in the elderly as it may be in other (younger) populations. And I found the married use health care differently – and better, to the degree that such judgments are possible. Let us look at each of these in more detail.

The first general finding was that the sicker an individual is, the less sensitive that individual is to the loss of a spouse. More precisely, sicker patients who had lost a spouse had a similar peak elevation of risk of death *and* were at elevated risk of death for less long after the loss of a spouse than were healthier patients (*i.e.*, the period of increased risk was shorter the sicker a patient was). This broadly followed a dose-response curve in response to degree of sickness. These patterns are illustrated with data for selected diseases in Figures 5.1 for men and Figure 5.2 for women.¹ In a similar vein, there was a continuity between the findings for the least sick patients –

¹ As the reader may recall from Chapter 2, a formal area-under-the-curve measure is not possible for Cox regression models with time-varying covariates. Since the peak relative hazards of death are similar, however, duration of effect can serve to rank order the magnitude of effects.

those who had a heart attack – and the generally “well” elderly spouses. For the M.I. patients (alone among COSI members), the loss of a spouse was associated with an enduring mortality decrement. This decrement mirrored, in pattern and magnitude, the decrement I found among the spouses – who were presumably healthier than the COSI cohort members.

I have argued that this regularity is summarized best as: spouses are most useful when patients are most healthy. This interpretation suggests – for men – further continuity between these results and other results in the literature, particularly those based on men in the PSID, and that seemed to show greater marriage effects. (Ellwood and Kane 1990; Lillard and Waite 1995) In the PSID, there was a strong effect of the loss of marriage; as reviewed in Chapter 3, men in the PSID who lost a spouse experienced an increase in mortality equivalent to ten years of aging. If it is true that the relatively younger men of the PSID are in general healthier than the “well” elderly spouses of COSI members, then the magnitude of the health of the subjects and of their bereavement effects order nicely: PSID men > Well COSI Spouses > MI patients > CHF / stroke / hip fracture patients > Cancer patients.

The second general finding was that elderly women also suffered from the loss of a spouse. When sick, women had somewhat blunted responses to the loss of a spouse relative to the results for men. However, the effects for women, in the analysis of them both as sick probands and as the “well” spouses of sick and dying probands, were statistically robust and substantively important. Among the elderly, women suffer from the loss of a spouse. (This has been corroborated in other studies,

such as 1997 work in the LSOA by (Korenman, Goldman and Fu 1997).) The patterning and magnitudes of effects seem, qualitatively, surprisingly similar across genders given past arguments of strong asymmetry.

Finally, this dissertation has also looked at the impact of marital status on one non-health outcome: health care utilization. Substantial and policy-relevant impacts of marital status were found. The married use better health care from many perspectives. They have shorter lengths of stay. At the same time, there was no evidence that the married receive preferential treatment within a given institution. This suggests that married people are making better choices.

5.2 Producing Health?

Throughout this dissertation it has been useful to talk about “making a husband more healthy” or “keeping a wife healthy.” Often the metaphor of health as something *produced* has been used. Two distinct features of this metaphor need to be interrogated. First, we need to examine the distinction between health as a current state and health as a capital stock. Second, we need to ask how either sort of health might be “produced,” highlighting the role of health production as a possible byproduct of other sorts of things.

The distinction between health as a state and health as potential is often blurred. In the first usage, health refers to one’s short-term probability of some adverse biological event – say mortality. Thus one can be much less healthy today than one was yesterday; this is one very common understanding of health. The

second usage refers to health as a measure of an organism's underlying hardiness. This is the sense in which Grossman uses health to refer to an individual's stock of health capital. It corresponds as well to physicians' half-joking notions that some patients "just have good protoplasm." Health in this second sense refers to one's long-run probability of death.

Which sort of health does marriage produce? This question underlay the distinction in Chapter 1's Table 1.2 between current-period models and investment models. If marriage acts primarily in the current period, then marriage produces short-term health. If marriage acts primarily as an investment, then marriage produces long-term health. This distinction helps greatly limit the sort of explanations that need to be considered. If marriage produces short-term health, then the benefits of marriage come from the actual actions of the spouse or from some social capital the marriage represents – that is, from something inhering the relationship between the spouses. If marriage produces long-term health, then the benefits of marriage are internalized – married people learn things or get things that they can keep with them after the relationship ends. That is, the benefits of marriage inhere in the individuals.

The data presented allow us to answer this question. *None* of the patterns of hazard of death following the loss of a spouse is consistent with an investment pattern. Figure 5.3 reviews the basic relationships between rates of investment, the amount of stock, and the flow from that stock. A sharp drop in an investment leads to a quite gradual equilibration of the stock level to a new lower level. The flow from

that stock – in this case observed “health” – also gradually declines. Since we do not directly observe health, but rather observe relative hazards of death – the negative of health – a “mortality” curve is also plotted. If marriage acted primarily through increasing a stock of capital that inhered in the individual, then in the period immediately following the loss of a spouse, that capital stock is still the same. This means that the observed risk of death is unchanged instantaneously following the death of the spouse. This is shown in the upper panel of Figure 5.4. As spouses change the net investment, the observed “mortality flow” from the stock will show a pattern of consistent increase following the death of the spouse – that is, relative mortality will increase following the death of the spouse as relative health decreases. Eventually some long-run equilibrium stock level is recovered – but that is, by definition, in the long-run, not immediately.

It is a simple generalization to incorporate a shock to the capital stock – a sudden decrease in the amount of capital caused by the trauma of the loss of the spouse. This is schematized in the lower panel of Figure 5.4. This elaboration allows for a rapid onset for the effects of the loss of a spouse. It cannot, however, change the temporal pattern thereafter. In a stock model, where the capital inheres in the individual, the hazard of death needs to increase with time after the death of the spouse.² In no case did we find this. Instead, the patterns are quite consistent with

² Strictly speaking, there is no dichotomy between investment models and current period models. Instead, a current period model is simply an investment model with a 100% depreciation rate over each period, and an analytically short “period.” Still, the distinction is useful. It is, of course, empirically impossible to distinguish

the predictions of a current period model – a sudden increase in the relative hazard that persists or declines. The decline occurs if the patient is able to find substitutes for spousal care – if the patient can adapt.

The fact that marriage appears to act primarily through short-term health effects rules out certain large classes of explanations. Most prominently, explanations that involve socialization and, more precisely, habit formation, seem not to apply. It just takes too long for good habits to be broken, and for the ill effects of bad habits (*e.g.* obesity, smoking) to act. Over very long time horizons – longer than the 5 years we survey in this data – such effects could become important; we have no data to directly test this. That is, there may be an upward turn in the relative hazard of death of the widowed *long* after the death of the spouse, as the new habits start to accumulate their disadvantages. However, the results in the first half of Chapter 2, in which we showed that there were few effects of the long-term widowhood on survival following diagnosis, *suggest* (but do not prove) that these very long-term effects may be weak.

But how might this short-term health be produced? Indeed, what does it mean to speak of “health production”? Certainly some activities can have direct effects of improving one’s health, over the short-term and long-term: taking antibiotics when one has a bacterial pneumonia, controlling one’s blood sugar levels if one is a

between a current period model and an investment model where the shock of widowhood just happens to reduce the stock to precisely the equilibrium level that would obtain as a result of the new decreased level of investment, leading to a rectangularized flow curve.

diabetic, getting the flu shot every winter, taking one's anti-hypertensive medications, quitting smoking. But most of the time most of us are not doing any of these things. Living in a reasonably clean, reasonably safe environment accounts for much of the developed world's mortality advantage – not medications *per se*. As such it seems unlikely that the major ways in which adults in the developed world “produce health” are direct investments in health.

Instead, it seems likely that health is typically a byproduct of other activities. It is, I would contend, relatively difficult for an adult living in the developed world to directly produce health. Instead, certain broad activities are “healthier” than others – the sustained choice of salads over fast foods, of walking up the stairs rather than taking the elevator. Whereas it is relatively easy to find direct activities to increase one's savings or one's education, positive improvements in health come only a little at a time. The marginal impact on our health of most of our consumption decisions is quite small. As such, it is unlikely that for most things that the health production is the major goal. Instead, health “happens” – and understanding the impact of lifestyle and other generalized consumption decisions on most health outcomes is a still novel science. This implies that any demographic explanation is at risk if it puts too great a weight on behavior in accordance with medical knowledge – there may not be enough accurate medical knowledge to explain the mortality differentials in question. Instead, unintentional benefits seem potentially important. That is, it seems that health is most commonly produced *jointly* with other goods the household desires.

5.3 Changing Production and Consumption

Why might the death of a spouse change a household's consumption decisions? Phrased this way, the question seems a little addle-minded. Of course a household that contains two adults will use different things than a household with one adult. However, if health is most commonly a byproduct – desired or otherwise – of other things that people do, then broad changes in an individual's production and consumption may be quite consequential for health. Since health appears at the margin of many consumption decisions, we need to understand the ways in which marriage can change what an individual chooses on many fronts. Marriage could alter an individual's consumption choices in at least two ways: reducing costs, and changing the experience of goods.³

Marriage's cost advantages can again come in two forms. The first is scale economies. It often costs much less than twice as much to make twice as much of the things in a household – the substantial fixed costs (particularly in time) of cooking are obvious examples. (This has been extensively documented elsewhere, such as Citro and Michael 1995.) The second way marriage may decrease the costs of production

³ One of the insights of the new home economics was to recognize the productive nature of household consumption decisions. (*e.g.*, Becker, Gary S. 1965. "A Theory of the Allocation of Time." *Economic Journal* 75:493-517. and Michael, Robert T., and Gary S. Becker. 1973. "On the New Theory of Consumer Behavior." *Swedish Journal of Economics* 75:378-395.) Thus a house buys food, but adds time, skill, companionship and laughter to make a family dinner. As such, throughout, I focus on the interaction between consumer goods and household characteristics to understand the making of the final products – family dinners rather than food – which people actually desire.

is by the decrease in transaction costs. As couples get to know each other, coordination becomes easier. Subtle adjustments get made as people learn each other's relative strengths. Less average time is spent on search as each member of the couple develops local expertise – one knows how to navigate the grocery store, the other is able to handle the finances. These sort of benefits can accumulate.

Marriage may also act by changing the experience of goods. Becker and Murphy's recent work on social economics formalizes exactly this commonly held notion: there are some things it is more fun to do with other people.⁴ (Becker and Murphy 2000) To use my own experience anecdotally, I have found that I really enjoy bicycling with my wife. This has led to more exercise in my life. I suspect the reader will grant the general principle that the chance to do things with a loved one may lead one to different preference rankings of experiences than were one to face doing those things alone. But it may also be possible – and I know of no data other than the anecdotal that could bear on this – that activities which have greater degrees

⁴ Becker and Murphy's work terms this social influence "social capital," and formalizes ways in which to incorporate social influences and interdependencies in preference functions. This is presented in Becker, Gary S., and Kevin M. Murphy. 2000. *Social Economics: Market Behavior in a Social Environment*. Cambridge, MA: Belknap Press. While this nicely highlights the potential complementarities of coordinated consumption between individuals, and helps model that formally, the terminology is unfortunate. Perhaps unintentionally, they rule out the direct productivity effects of social capital that were, I think, Coleman's most exciting idea. (See Coleman, James S. 1988. "Social Capital in the Creation of Human Capital." *American Journal of Sociology* 94:S95-S120.) Social influences may go in utility functions as Becker and Murphy suggest, but we should not rule out a role of social capital as capital with an appropriate place in production functions. Indeed, such a directly productive role for marriage in an individual's health production function is precisely the position for which I have been arguing here.

of health coproduction also have greater relationship complementarities. That is, things that produce health as a byproduct may be more likely to be chosen when one is married because they also happen to be more fun to do with other people. Indeed, a partial source of this complementarity might be the enjoyment that comes from knowing that you are helping make your partner healthier. That is, consider a choice between two equally pleasurable (in a direct selfish sense) activities, X and Y. Suppose activity X has the effect of increasing the health of the person with whom it is done, whereas activity Y does not; this means that activity X generates an externality. In a marriage, because you care about your partner – and presumably more than you care about the other people with whom you may do things – the health externality of X is partially internalized. X makes your partner healthier; you value your spouse's health. Whereas you were indifferent between X and Y in the face of a random partner, if your partner is your spouse, you now prefer X to Y. The internalization of the health externalities leads to a complementarity between health-producing activities and marriage.

Certainly, many strategies currently advocated for cardiovascular health and obesity prevention take advantage of the potential for social connections to change consumption. From regular pick-up basketball games to Oprah's running club, these groups capitalize on the increased pleasure of doing physical activity with people one knows. Conversely, many of the entertainment technologies that we have that substitute for interpersonal relationships – books, television, internet chatrooms – have a requisite sedentariness to them. However, this complementarity between

social interaction and health production is certainly not universal; for example, cigarette smoking appears to have a definite social aspect both in its initiation and in its continuation.

Focusing on the role of relationships as a complement to consumption provides a less moralistic framework for understanding – and developing insight into – certain critiques of current American design and consumption habits. It is, perhaps, easier to simply assert that television and neighborhoods without side walks or public parks are “bad.” But if the ready availability of these products – which reduce the relative price of relationship-free time – is having unintended consequences for either our civic life or our health (both which have public good components), then there may be a more rigorous case for interventions. (Those interventions might be nothing more than education – although education is often quite cost-effective.)

Some empirical work may be warranted to develop this hypothesis. Mapping out some of these differences – understanding which products are complemented by (and therefore complements to) relationships – might provide an interesting set of tools for individuals interested in fostering certain types of community. A weak test of this hypothesis was inconclusively carried out in the dissertation. Patients with Alzheimer’s should presumably lose these complementarities as they lose emotional connections. A weak test of this hypothesis that the benefits of marriage come from the complementarities of consumption would be to test if patients with Alzheimer’s are less sensitive to the loss of a spouse than are those patients who do not have Alzheimer’s Disease. Further, this line of argument suggests another way in which

the emotional connection between spouses may impact their health. The emotional connection between spouses may not be important for stress buffering or via direct physiological effects – as the data suggested it was not, contrary to much speculation in the literature reviewed earlier. But that emotional connection may still be vital for mediating the differences in household production – and therefore still be at the root of the way in which marriage increases the health of the married.

I have reviewed broad ways in which marriage might change household production. Understanding the nature of these production changes is important if we are to consider possible interventions in order to blunt the mortality impact of widowhood. The first two explanations of the change in the production of health stem from differences in the resources available to a married household relative to those available to available to a widowed individual. As such, direct transfers or differences in living arrangements might be able to compensate for the death of a spouse. If the complementarities discussed previously are at the root of the benefits, however, it seems that only alternative relationships could buffer the mortality effects of spousal loss.

If the scale advantages of marriage are quite important, then group living may be able to recoup these benefits. Such efforts have existed for some time; examples include certain retirement communities and assisted living facilities, as well as cohousing projects. Certainly, scale advantages are one of the benefits of living on a kibbutz. However, scale advantages suggest simply that the widowed face a stricter budget constraint, and this lower total budget reduces their health. If the restriction

comes primarily from financial limits, increased cash transfers might help overcome these differences and improve health. (Note, however, that the effects of the loss of a spouse occurred under a Social Security payment regime that does give those who lost a spouse in our study well more than half of the couples' income.) However, it is also possible that the binding constraint comes from the reduced amount of total time available when a household moves from two to one member. If this time reduction is the problem, then cash transfers may be useful to the extent that they allow the purchase of "time-saving" technologies or services – but those technologies may well be inadequate to the task.

The second possibility was that the health benefits of higher marital household production stem importantly from the reduced transaction costs within the household. If the transaction costs are important, then mere group living is not enough. Instead, stable relationships – and probably friendships – are important. This might explain why home-health aides seem to have so little impact on health. (Hadley et al. 2000; Hughes et al. 1997; Welch, Wennberg and Welch 1996) Anecdotal evidence suggests that home health aides constitute a highly labile workforce, and that there may be little continuity of care from week to week among beneficiaries – such variability would interfere with the development of transaction cost-reducing knowledge. That is, one must both: (a) be living closely enough with other people to benefit from their work, and (b) know well the people with whom one is making household decisions. Perhaps only certain intentional communities, certain shared households of extended families, and the kibbutz come close to these goals with any regularity. However, to

this way of looking at things, transaction costs amount to lost money, and, particularly, lost time. As such, the sort of transfers discussed in the preceding paragraph *may* help ameliorate the loss of the spouse.

Finally, if the complementarities of production are in fact important, then only ongoing close relationships of other forms may be able to compensate; in that case, only communities can be useful. Our interventions would need to focus on the arduous task of building communities among those most at risk for losing a spouse – since transfers simply could not compensate. Even if the widows’ financial and temporal budget constraints could somehow be “reset” to their married levels, the choices that would be made would still be different. As such, one would need to be imbedded in a mesh of close relationships that would offer emotional replacements – in a very literal sense – for the day-to-day enjoyment of living with a spouse. Since intimacy requires investment – that is, one needs to have spent time with the person before one really trusts them – then it is not clear that any degree of community could ever fully overcome the death of a spouse. This is so because spouses and other relationships are to some degree substitutes; one only needs a few best friends. If so, communities may be most effective at blunting the long-term consequences of the death of a spouse by providing a ready network of people with close ties who are potential best friends. Further, communities would need to be structured so that the widowed do not slip through the cracks, but are instead integrated into a milieu that facilitates the deepening of relationships. It is unclear, to say the least, what role the

government could play in fostering such communities; however, other civic institutions might be able to play this role.

5.4 Changing Goals

The line of argument to this point has required only a very flimsy description of the marital relationship. Spouses have served, to some degree, as roommates and people with whom one might hang out; only in the discussion of production complementarities could the depth of the marital connection play any real role. But, to my reading, the rather distinct patterns shown in this dissertation suggest that spouses are more than just someone with whom costs are shared. In trying to synthesize these results, I argued in Chapter 3 that marriages can be thought of as a form of general capital. That is spouses – and, perhaps, relationships more generally – serve to improve an individual’s “productivity” in a variety of domains. In this case, that domain is the production of health – either the recovery from an illness, or (more pertinently) avoiding illness in the first place. I find the parallel to education useful. It is hard to disentangle why, exactly, the educated are more productive – they seem to do many things a little bit differently, and there are strong cumulative effects. However, given a particular, narrowly defined project – assuming that project is outside of the range of the training the individual received – education may not produce nearly the same differentials in productivity. Similarly, spouses are useful for the broad task of living healthily, but are less useful at the narrow task of recovering from colon cancer. We can benefit by drawing the analogy between

relationships and human capital more thoroughly. Relationships, I contend, can be thought of as productive in the same way that “general human capital” – usually measured as unspecialized schooling – is productive. In this context, recall the distinction between specific and general human capital, which I think provides a quite useful metaphor for our purposes. (Becker 1975) Becker argues that human capital varies in two important dimensions: first, how much it improves one’s marginal productivity, and second, over how general a class of problems it improves one’s productivity. Skills that makes one useful in many contexts (*e.g.*, literacy, statistics) are examples of general human capital. Skills that are helpful for only a given context (*e.g.*, understanding the University of Chicago’s reimbursement paperwork) is specific capital. General human capital may or may not make one more productive at any given problem, but it will in general help on most problems; similarly for spouses (and perhaps relationships more generally).

Paralleling the human capital literature suggests an additional way of thinking about the benefits of a spouse. More than three decades ago, Finis Welch asked why, if the supply of general human capital keeps rising, do the returns to education continue to rise? (Welch 1970) He argued that the labor economists’ way of looking at the marginal product of labor – holding other inputs constant – was too narrow:

Increased education simply may permit a worker to accomplish more with the resources at hand. ... On the other hand, increased education may enhance a worker’s ability to acquire and decode information about costs and productive characteristics of other inputs. As such, a change in education results in a change in other inputs including, perhaps, the use of some ‘new’ factors that otherwise would not be used. (Welch 1970, page 42)

Looking within agricultural production he argued that the returns to education were greatest in the places with the greatest technological change. Education does not help farmers use any given tool better; what education does is help farmers pick which tool to use when there is imperfect information about the relative values of different tools.

This provides a nice metaphor for how spouses might help. When an individual has a particular fatal disease, *e.g.* lung cancer, there are very few options, and the choice of where to go for help (*e.g.*, an oncologist) is relatively clear. When an individual is generally healthy, specialist help is less useful – instead, the challenge is to locate resources and activities that will keep one healthy. For this purpose, a much more general search is necessary. Thus, the greater the variety an individual faces, the more useful a spouse may be. In Welch's terms, a spouse improves health by improving the allocative efficiency of an individual's choices about how to be healthy. The key role of the spouse is not so much in helping to carry out any given goal, so much as helping to pick goals. The findings in Chapter 4 provide further support for this view. In those data, spouses appear to be steering individuals towards generally better health care *before the probands knew their diagnosis*; this suggests that the married had a better general algorithm for where to seek help. Most generally, spouses impact the broad-brush choices about lifestyle, and kinds of care, rather than changing the marginal choice on any given Tuesday of whether to have potato chips or carrots for a snack.

Does that example, however, highlight a paradox in my explanation? Am I contending that spouses exert a macro effect that lacks an embodiment in micro-level behaviors? After all, I have argued that the social control and normative policing hypotheses were not supported in my data. Similarly, a number of studies have found that home health aides – who could exert a similar on-the-ground influence – have no impact on health outcomes. (Hughes et al. 1997; Welch, Wennberg and Welch 1996) Clearly, I think the paradox is more apparent than the real.

Consider two examples that are parallel to this supposed paradox. Stephen Nock has argued that marriage exerts a broad ranging influence in men's lives. (Nock 1998) He finds that marriage is associated with a striking number of discrete behavioral changes, but also a more general turn towards certain adult masculine roles. It is this broad turn, he argues, that is important to marriage's impact on men's happiness, not any given behavior. That is, the impact of marriage on men's lives is not caused by their going to bars less or giving more to charities. Rather, those behaviors stem from a more general reorientation of men's lives once they are married; married men have a quite different general orientation to the sorts of things they seem to like to do. Education's impact on work productivity is again useful as an analogy. Increased education may make one read a little bit faster, do mental calculations with a little more ease, perhaps increase one's vocabulary. But the effect of education is somehow broader than any of these constituent differences, and seems to involve their interplay. To look at these primitive units of behavior is to look at too low a level of aggregation to see the true impact of education. One cannot see tides

by looking at the height of individual waves. That is, the problem with the normative policing hypothesis is not so much one of content as one of focus – it looks for marriage’s effects in too specific a set of changes.

5.5 From Marriage to Community?

Can these hypotheses about marriage tell us something about relationships more generally? In the preceding discussion, the reader may have noted a tendency to elide the distinction between “relationships” and “marriages.” The biggest threat to drawing such parallels was the possibility that marriage was also a status indicator – that the married were treated better than the unmarried because of their status, rather than some aspect of their behavioral differences. The health care utilization study found no evidence that marriage qua marriage is important from a status perspective; the married did not appear to be given preferential treatment or better quality service in the hospitals than were the unmarried. Thus it appears that there is more continuity than difference between the benefits of relationships in general and the marriage relationship in particular.⁵ If this is so, then the literature on social capital and health would benefit from attending more closely to the long history of studying marriage. (Berkman and Kawachi 2000)

⁵ Waite and Gallagher’s helpful discussion of the potential importance of gender adds qualifications that I would echo, but those qualifications are not binding on cross-gender friendships. See Waite, Linda J., and Maggie Gallagher. 2000. *The Case for Marriage*. New York: Doubleday., pages 200-201.

More generally, there are three levels at which the interplay of relationships and health have been studied, and each level suggests there are health implications of that type of relationship. The first is best characterized by Lisa Berkman and her colleagues' rigorous work on social isolation. (Berkman 1995; Berkman, Leo-Summer and Horwitz 1992) The second is the study of marriage and the family. The third is the impact of community. All have been shown to have marked effects on nearly every outcome of interest.

The most focused set of these analyses has asked: how does the number of social contacts a person has alter their health. This work has shown a tremendous effect of going from zero to one social contact; the effects seem to plateau quite sharply in this metric thereafter. What this work has not done is adequately asked: how exactly does someone come to have zero social contacts? What are the health implications of that process of total social marginalization – and might it be the process of marginalization itself, rather than social contacts per se, that seems to be affecting (or affected by?) health? That is, while it clear from this work that there are very strong associations between utter social isolation and health, it is far less clear (a) whether those associations are the result of the isolation itself; (b) that inadequately measured underlying health problems have not badly confounded this relationship; and (c) how to generalize from the existence or not of *any* relationship to the nature of social interactions more broadly. At the other end of the spectrum, there is an unassailable case made that communities share health outcomes. There is a

plausible case that this is related to something about the way those communities are structured. What it might be about those communities is deeply contested.

The middle ground of the family serves as an excellent, empirically tractable way to look at relationships and health. The family is bigger, more stable, and vastly more common than total social isolation. But it is smaller, stabler, and vastly more measurable than “community.” Unsurprisingly, this middle ground shows robust effects on health – although effects that are probably smaller than the effects of social isolation per se. Indeed, marriage affects many things. I have tried to argue in this chapter that the multiplicity of effects is *not* a distraction that prevents us from isolating the “real way” marriage works. Rather, that multiplicity of effects *is* the real way marriage works to affect health.

If this is true, what does the study of marriage and health tell us about relationships and well-being more generally? First of all, it suggests caution against looking for a single mechanism. One appeal of single mechanism explanations is that they lend themselves to interventions – *if we can just figure out what the widowed need, we can give it to them and keep them from dying*. But, of course, if it was just one thing, it is quite likely that the widowed would have already found it; the widowed do have at least as large an interest in their own mortality as we social scientists do.

Second, the study of marriage leads us to ask: “what is distinctive about marriage?” This suggests that two dimensions of community could be particularly important: duration of relationship, and willingness to invest in knowledge about

others.⁶ Communities in which an individual is known, in some personal sense, and which expect to stay together, would be expected to be most productive of health. More generally, this parallel between marriage and other relationships highlights a host of interesting questions: to what degree is reciprocity important for health outcomes? How does uncertainty as to duration alter health benefits? As the marital composition of the American elderly begins to change dramatically, answers to such questions may have broad applicability. But at the same time, the range and diversity of communities suggest questions that those who study marriage are only beginning to explore. These include: How does variation in the nature of marriage affect its health benefits? How do external structures, individual personality traits, and marriage-forms match together and interact to help or hinder health?⁷

Third, this dissertation has suggested – although certainly not proved – that an important set of benefits of marriage are not internal. That is, the benefits of marriage

⁶ These points are generally made in the context of efforts to understand cohabitation, as in Willis, Robert J., and Robert T. Michael. 1994. "Innovation in Family Formation: Evidence on Cohabitation in the U.S." Pp. 9-45 in *The Family, The Market and the State in Aging Societies*, edited by J. Ermisch and N. Ogawa: Clarendon Press.. I think the insights are quite general.

⁷ Catherine Ross has made persuasive arguments along these lines, although the data problems are daunting. See Ross, Catherine. 1995. "Reconceptualizing Marital Status as a Continuum of Social Attachment." *Journal of Marriage and the Family* 57:129-140. Among the challenges in such work is to avoid the risk of confusing the constituent parts of marriage with intervening mechanisms; this caution has been raised particularly in the case of divorce. Thus, while divorce may not negatively affect children's outcomes *if* the children's standard of living does not decline, *and if* they do not move, *and if* the tensions between their parents are well-managed; such a divorce is so exceedingly rare as to be almost useless as a model. See McLanahan, Sara, and Gary D. Sandefur. 1994. *Growing Up With a Single Parent: What Hurts, What Helps*. Cambridge, MA: Harvard University Press.

for health do not seem to come from things spouses do for spouses in the privacy of their own homes. Rather, I think, marriage seems to work by changing the way the household interfaces with other social structures (*e.g.*, the health care system) and with the consumption options with which they are faced. Relationships mediate complex material conditions.

But this dissertation has also suggested that complex material conditions may mediate relationships. This general point has been repeatedly made.⁸ Here I have tried to suggest that there may be more thoroughgoing sets of effects. The cumulative force of multiple low-level consumption decisions – whether I buy a television or a card table – may have deep impact on not merely our health but also our relationships. Certain social critics – particularly the so-called “deep ecology” writers and, at the other extreme, the new technology zealots – take very seriously the way technology structures our relationships, and changes the nature and outcomes of those relationships.⁹ But social scientists have not, to my knowledge, applied a

⁸ Examples are too numerous to list. Work important to my own thought process includes that looking at the impact of economic conditions on union formation, (such as Oppenheimer, Valerie K. 1988. "A Theory of Marriage Timing." *American Journal of Sociology* 94:563-91.) and women's economic opportunities and contraceptive technology on union dissolution (such as Michael, Robert T. 1988. "Why Did the U.S. Divorce Rate Double within a Decade?" *Research in Population Economics* 6:367-99.).

⁹ “Deep ecology” writers typically argue that our culture has become dependent on machines and consumption, and that this technology is both personally corrupting and environmentally disastrous. They argue for a reorientation of our technology towards small communities with “sustainable” impacts on the environment. The periodical *Adbusters* regularly highlights this line of thinking; samples are available over the internet at www.adbusters.org (accessed 7 May 2001). “New technology” writers argue that the advent of information technology results in

rigorous empirical lens to understanding the way technologies, relationships, and well-being mutually shape one another. Health – because of its relative stability and the relative unanimity as to what “better” health is – provides a useful forum by which we can understand how our social structures, our products, and our life chances interact.

the fundamental reshaping and deepening of the possibilities of connection between individuals and communities. The periodical *Wired* regularly highlights this line of thinking; samples are available over the internet at www.wired.com (accessed 7 May 2001).

Figure 5.1 - Effects of Losing a Spouse - Men

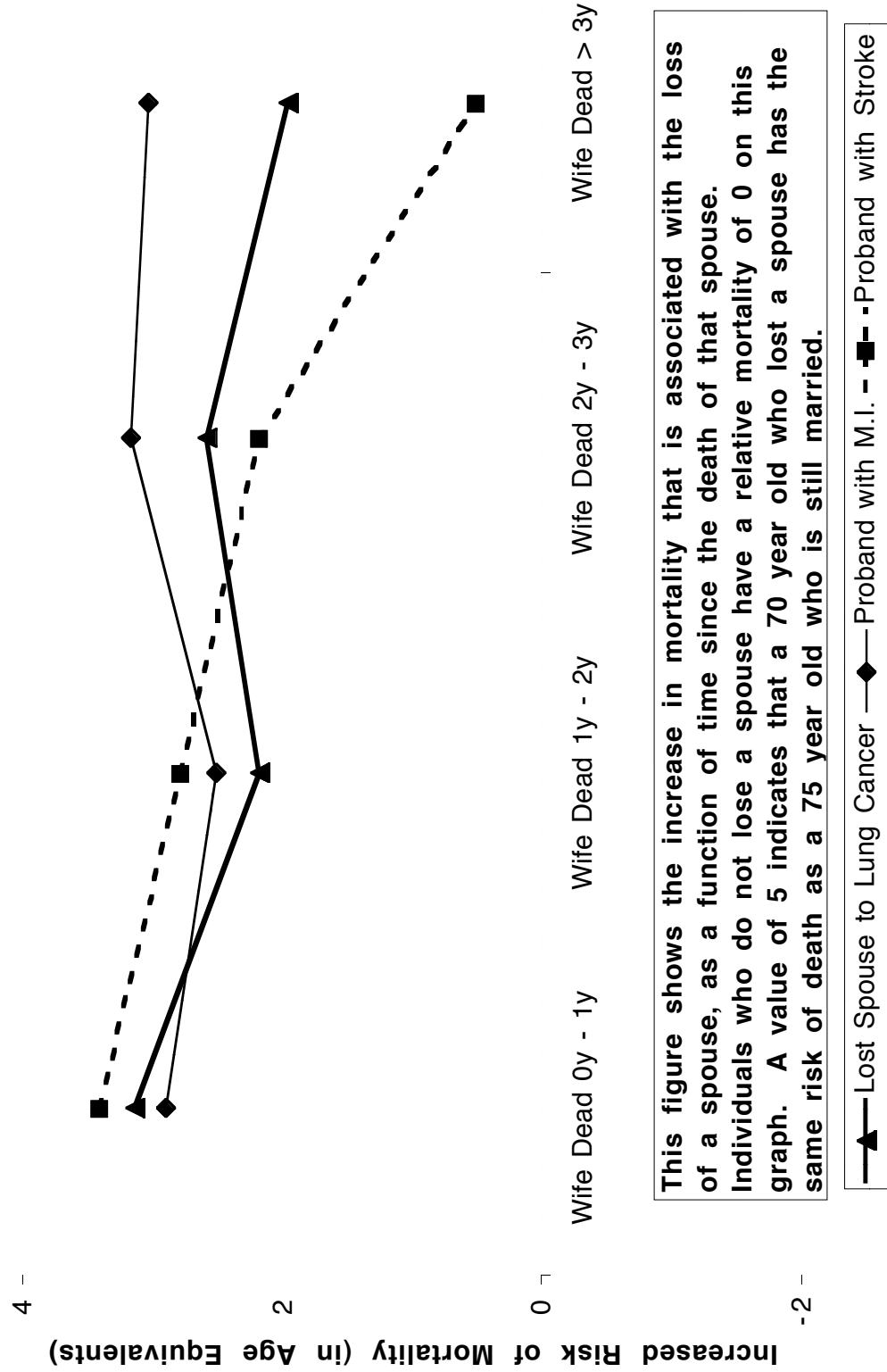
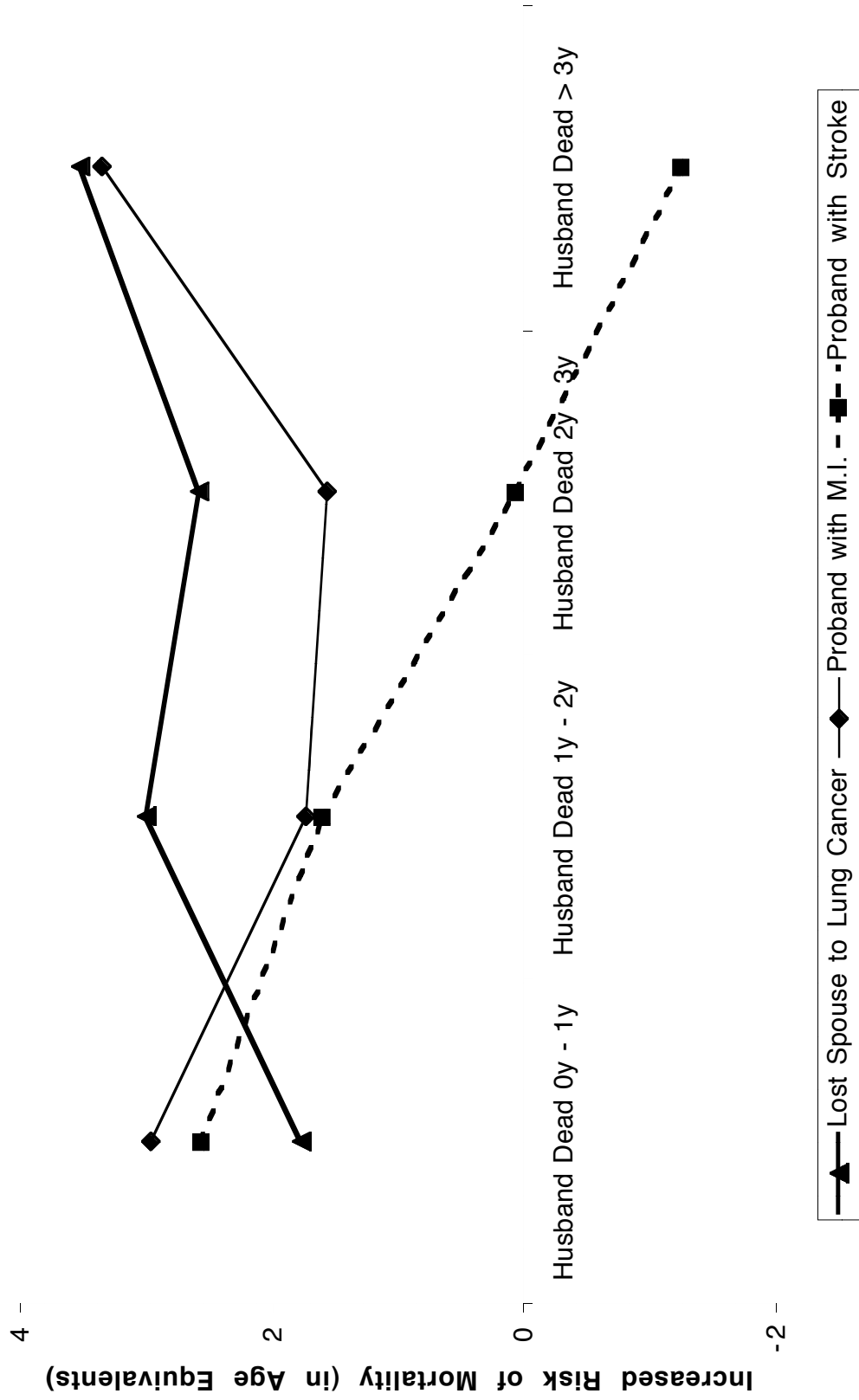


Figure 5.2 - Effects of Losing a Spouse - Women



—▲— Lost Spouse to Lung Cancer —◆— Proband with M.I. - -■- - Proband with Stroke

Fig. 5.3: Relationship of Investment, Stock, Flow and Mortality

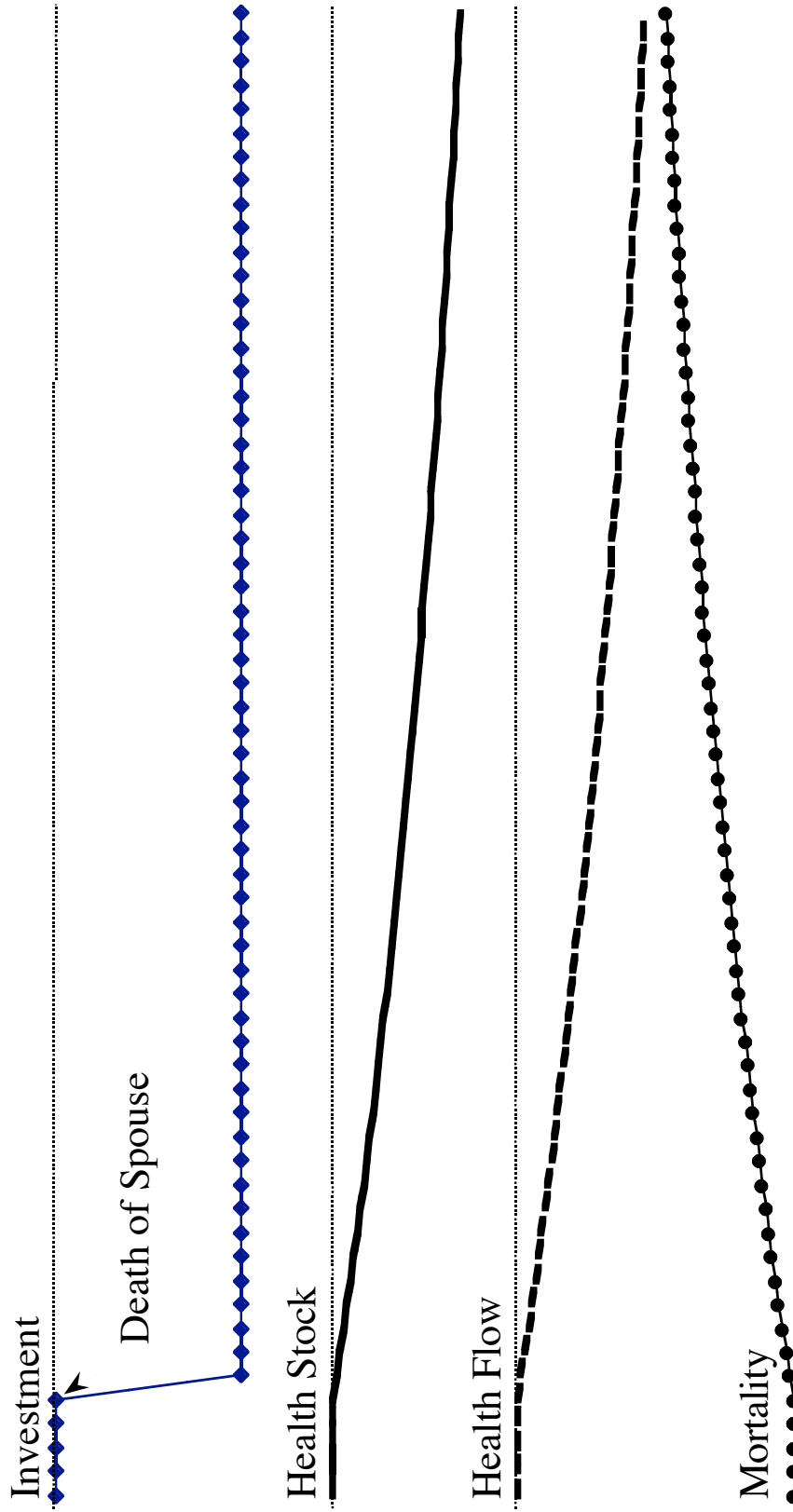
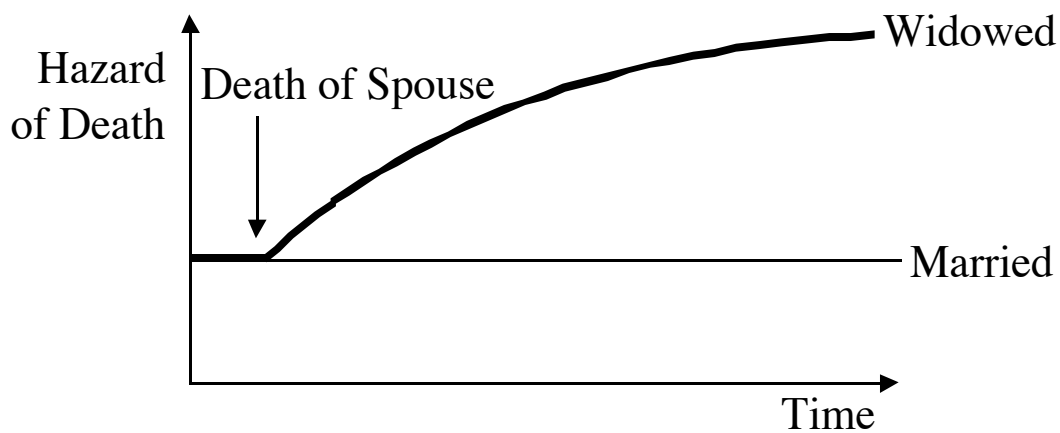
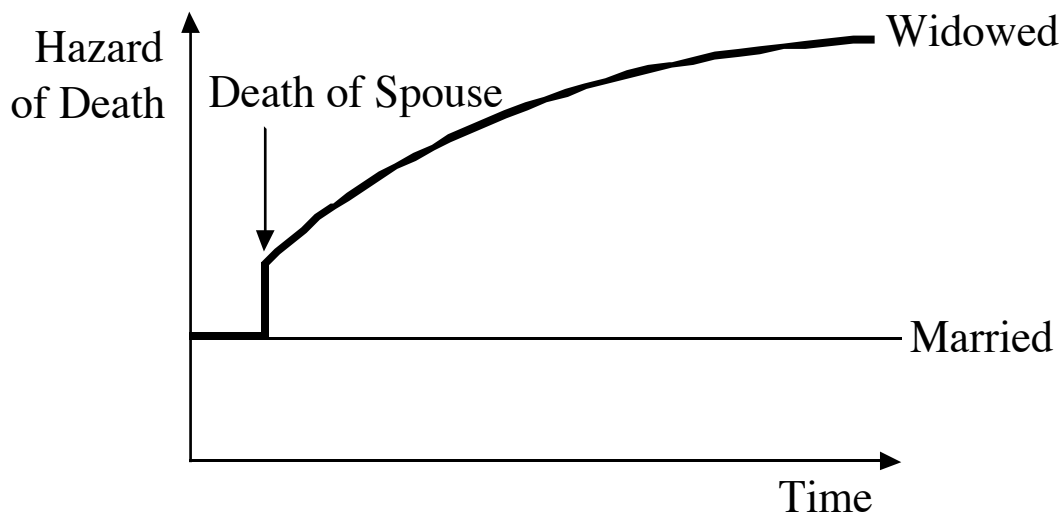


Fig. 5.4: Patterns of Death from Investment Models



Basic Investment Model
with Decreased Inputs at Death of Spouse



Decreased Inputs + Shock Model