Intergenerational Solidarity in Aging Families: 
An Example of Formal Theory Construction

This article describes development of a theory of solidarity among parents and children during the adult family life course. Four stages in the theory's development are reported here. Presented first is a taxonomy of six dimensions of intergenerational family cohesion—association, affection, consensus, resource sharing, the strength of familism norms, and the opportunity structure for interaction—reflecting conceptual contributions from classical social theory, social psychology, and family sociology. An initial formal theoretical specification of interrelationships among a subset of the six elements is reviewed, as well as two independent tests of that model. Second, a revision of the theory informed by results of the two empirical tests is presented. Third, elements of the revised theory are translated into a structural equation model, which is tested with data collected from 363 pairs of elderly parents and middle-aged adult children. These data provided support for seven of nine propositions derived from the reformulated theory. The major finding concerns interrelationships among normative integration, affection, and association. Greater endorsements of familial primacy norms by parents and children were associated with higher ratings of intergenerational affection. Greater affection was, in turn, related to more frequent association when opportunity for interaction was controlled. The fourth stage in theory development reported here includes discussion of the new results and suggestions for future conceptual and empirical work.

The past decade has seen a rapid expansion of research on parent-child relationships in later life, as is suggested by the reviews of Mancini and Blieszner (1989), Bengtson, Rosenthal, and Burton (1990), and Brubaker (1990). Despite the growing volume of descriptive findings accruing from studies of intergenerational relationships, theory in this area remains underdeveloped. Few theoretical models have been presented that consolidate knowledge concerning intergenerational family behavior, explain variations in such behavior, and point to new directions for research.

The purpose of this article is to report the logical and empirical development of one theory that attempts to account for patterns of solidarity among parents and children during the adult family life course—that is, intergenerational cohesion after children reach adulthood and establish careers and families of their own. We conceptualize intergenerational family solidarity as a multifaceted, multidimensional construct reflected in six distinct elements of parent-child interaction: affection, association, consensus, resource sharing, the strength of familism norms, and the opportunity structure for parent-child interaction. The aim of the theory is to specify interrelationships among these elements of intergenerational solidarity.

First, we present the taxonomy of intergenerational solidarity elements, derived from classical
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social theory, social psychology, and family sociology. We review an earlier attempt at the formal specification of interrelationships among a subset of the elements and described two independent tests of that model. The second section presents our revision of the theory informed by the results of the two empirical tests, as well as by a reexamination of assumptions in the original model. In the third section we present an empirical test of the revised model using structural equation modeling. We conclude with some suggestions for future development of the model.

**CONCEPTUALIZING INTERGENERATIONAL SOLIDARITY IN FAMILIES**

Theory development has one ultimate goal: the statement of abstract principles or propositions that accurately explain relations among elements of the empirical world. While there are a number of methods through which empirically driven theory can be developed—for example, one may begin either inductively, as Glaser and Strauss (1967) suggest for "grounded theory," or deductively, as we have done here—eventually the achievement of an accurate theory requires successive iterations between conceptual statement and empirical verification (Turner, 1986). The first step in this project involved an effort to trace the microsocial architecture of the intergenerational bond—the nature of interactional ties between postadolescent children and their parents.

**A Taxonomy of Intergenerational Solidarity**

Table 1 presents the six dimensions of parent-child relations we have defined as essential components of intergenerational solidarity. Five of these dimensions reflect behavioral, affectual, and/or cognitive orientations of intergenerational dyad members toward one another. These dimensions include (1) association (or contact); (2) affection (or emotional attachment); (3) consensus (or agreement); (4) function (or patterns of instrumental support or resource sharing); and (5) familialism (norms or expectations of individual obligations to the family). The sixth element of solidarity, structure, refers to the "opportunity structure" for family interaction; the availability of members for interaction as influenced by such factors as propinquity, fecundity, morbidity, and mortality. Table 1 provides nominal definitions and frequently employed empirical indicators of the constructs.

**Table 1. Six Elements of Intergenerational Solidarity, with Nominal Definitions and Examples of Empirical Indicators**

<table>
<thead>
<tr>
<th>Construct</th>
<th>Nominal Definition</th>
<th>Empirical Indicators</th>
</tr>
</thead>
</table>
| Associational solidarity | Frequency and patterns of interaction in various types of activities in which family members engage | 1. Frequency of intergenerational interaction (i.e., face-to-face, telephone, mail)  
2. Types of common activities shared (i.e., recreation, special occasions, etc.) |
| Affectual solidarity  | Type and degree of positive sentiments held about family members, and the degree of reciprocity of these sentiments | 1. Ratings of affection, warmth, closeness, understanding, trust, respect, etc. for family members  
2. Ratings of perceived reciprocity in positive sentiments among family members |
| Consensual solidarity | Degree of agreement on values, attitudes, and beliefs among family members         | 1. Intrafamilial concordance among individual measures of specific values, attitudes, and beliefs  
2. Ratings of perceived similarity with other family members in values, attitudes, and beliefs |
| Functional solidarity | Degree of helping and exchanges of resources                                        | 1. Frequency of intergenerational exchanges of assistance (e.g., financial, physical, emotional)  
2. Ratings of reciprocity in the intergenerational exchange of resources |
| Normative solidarity  | Strength of commitment to performance of familial roles and to meeting familial obligations (familism) | 1. Ratings of importance of family and intergenerational roles  
2. Ratings of strength of filial obligations |
| Structural solidarity | Opportunity structure for intergenerational relationships reflected in number, type, and geographic proximity of family member | 1. Residential propinquity of family members  
2. Number of family members  
3. Health of family members |

Source: Adapted from Bengtson and Schrader (1982); McChesney and Bengtson (1988).
The choice of the construct "solidarity" and the six dimensions hypothesized as empirical components reflects several theoretical traditions, including (a) classical theories of social organization, (b) the social psychology of group dynamics, and (c) the developmental perspective in family theory. A detailed explication of these theoretical roots lies beyond the scope of this article and can be found elsewhere (see Roberts, Richards, and Bengtson, 1991). To summarize briefly: some of the earliest social theory emphasizes the importance of group norms and functional interdependence in shaping behavior (these are Durkheim's 'mechanical' and 'organic' forms of solidarity, respectively; 1893/1933), as well as consensus over rules of exchange (in Tönnies's discussion of Gesellschaft relations; 1887/1957) as important bases of solidarity. The social psychological theories of Homans (1950) and Heider (1958) point to the importance of sentiment (affection), interaction (association), similarity (consensus), and norms toward group membership for fostering solidarity. The taxonomy also reflects contributions of family theorists who have attempted to integrate existing research findings and/or clinical experiences into a single conceptual framework for describing family integration or solidarity. For example, the six dimensions build upon the work of Jansen (1952), Nye and Rushing (1969), and Hill, Foote, Aldous, Carlson, and McDonald (1970), who found evidence for associational, affectual, consensual, functional, and normative dimensions of family integration in the results of empirical research on family relations.

While this conceptual taxonomy is certainly not exhaustive, the dimensions continue to reflect an implicit organization of existing findings. It should be noted that indicators of some or all of the six elements listed in Table 1 have been employed by researchers interested in family solidarity in varying ethnic (Markides and Krause, 1985), and cross-national (Knipscheer, 1988; Marshall, Rosenthal, and Daciuk, 1987; Morioka, Sugaya, Okuma, Nagayama, and Funjii, 1985) contexts, as well as over the life course (Rossi and Rossi, 1990).

After the relevant constructs have been identified and nominally defined, the next step in theory development is to specify interrelations among the constructs. Are the elements of parent-child solidarity in Table 1 interdependent, such that finding high levels of one element necessarily means that one will find high levels of any of the others (as suggested by functionalists such as Parsons, and as the early Homans would argue)? Are some elements of parent-child solidarity more closely related than others? If the elements are interdependent, are the relationships among them linear?

The initial attempt to predict interrelationships among some of the solidarity constructs was made by Bengtson, Olander, and Haddad (1976). This theory drew primarily from the literature on small groups and focused on three solidarity constructs—affection, association, and consensus. The central proposition in this theory was that these constructs are highly interdependent. This argument followed both Homans's (1950) and Heider's (1958) reasoning that liking (affection), contact (association), and agreement (consensus) are mutually reinforcing in interpersonal relationships. The theory posited that intergenerational solidarity is a unidimensional metaconstruct indicated by high levels of affection, association, and agreement. The theory stated specifically that given high levels on an indicator of one of the three constructs—for example, high rates of association between older parents and their child—one would find high levels on indicators of each of the other two—for example, high affection and high agreement.

Empirical Tests of the Initial Model

Researchers have recently conducted two empirical tests of the Bengtson et al. (1975) model of intergenerational solidarity. Each test failed to find support for the model's central proposition that intergenerational affection, association, and consensus are highly interdependent (see Roberts et al., 1991, for a detailed review of the findings). The first test (Atkinson, Kivett, and Campbell, 1986) found that measures of these three solidarity elements could not be combined into a single additive scale. A second, independent test (Roberts and Bengtson, 1990) also found low scalability among indicators of the three constructs. However, the low scalability was determined to reflect independence between the consensus measures and the measures of affection and association. Despite the absence of unidimensionality
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among the three constructs, a moderately high correlation was found between measures of affection and association.

The major contribution to theory development provided by the two tests is in refuting the proposition that family solidarity can be treated as a unidimensional metaconstruct subsuming affection, association, and consensus. The second test also suggested a more refined conceptualization of the relationships among the three elements, with consensus being independent of a mutually interdependent system of affection and association.

REFORMULATION OF THE MODEL

It is uncommon, unfortunately, to find published reports of the next stage of theory development in family sociology: explicit revision of an initial model following what was learned from empirical tests and a reappraisal of the assumptions underlying the initial formulation. But this is a crucial step in empirically driven theory construction. Figure 1 reflects our attempt for a revised model of the structure of intergenerational solidarity. The most obvious revisions to the original theory include (a) expansion of the model to include the additional three solidarity elements—normative, functional, and structural solidarity; (b) the assumption that consensus should be independent of the other solidarity constructs; and (c) a focus on individual levels of normative integration, affection, and resource sharing, rather than on dyadic manifestations of these constructs.

The revised model in Figure 1 also specifies the multidimensional nature of intergenerational cohesion or solidarity. Solidarity is not conceptualized as a metaconstruct that uniformly accounts for variability in indicators of the component solidarity constructs. The two empirical tests suggested that our earlier predictions, based on small-groups findings, cannot be applied to intergenerational or family relationships. This empirical evidence also caused us to examine another issue: what is the relationship between consensus (parent-child agreement) and other aspects of interaction, and why don’t they covary?

FIGURE 1. REVISED MODEL OF STRUCTURAL RELATIONS BETWEEN PARENT-CHILD SOLIDARITY CONSTRUCTS IN OLDER FAMILIES
**Intergenerational Consensus and Interaction**

In the original theories, the central assumption was that ideological similarity (consensus) between older parents and their children would reinforce and be reinforced by high levels of affection and association. This assumption was not supported in the two empirical tests. Parent-child agreement or consensus over abstract cognitive orientations (for example, attitudes toward politics, religion, and sex-role ideologies) was independent of levels of affect and association, which themselves exhibited a moderately high degree of association. Why? Our predictions were made on the basis of small groups research and theory. Their limitations in predicting family relationships were made clear when we went back to general sociological propositions concerning differences in the types of the social bond among group members, as derived from earlier social theory.

Tönnies's 1887/1957 original distinction between Gemeinschaft and Gesellschaft relationships, further elaborated by others (e.g., Parsons, 1973; Weber, 1922/1968) seemed especially appropriate for distinguishing between processes operating in small groups and in families. Gesellschaft relationships characterize interaction of "free" actors engaged in voluntary exchanges, the forms of which are often prescribed by law or common agreement. Relations between members of small groups typically studied by social psychologists conform in many ways to the model of Gesellschaft relations. The relationships among free actors, unfettered by strong normative prescriptions for continuing interaction in the face of disagreements of opinion (dissensus), would likely exhibit substantial correspondence between levels of association, affection, and agreement. This was the logic followed by the early Homans (1950) and, less directly, by several family theorists (Olson, Russell, and Sprenkle, 1983; Mancini and Blieszner, 1989).

Gemeinschaft relationships, on the other hand, reflect an extensive set of normative prescriptions for both the affective and behavioral orientations of members toward one another. Tönnies, in fact, regarded family relationships as exemplary of Gemeinschaft relations in general, insofar as family members are encumbered with myriad normative expectations for their emotions toward, and interaction shared with, other family members. For example, the parental role is constrained by the norm that one should feel affection (or perhaps obligation and responsibility) for one's child. In contemporary society adult children face normative expectations that they will visit aging parents and will help one another through the exchange of resources when either are dependent upon the other. But intergenerational consensus (or similar ideology) may become increasingly unlikely over time, given differences in experiences that accrue over the lives of parents and children, and thus may not correlate highly with affective orientations nor with interaction patterns. The weight of normative expectations may induce parents and children to "bracket" differences in opinions over abstract ideas in order to allow interaction and feelings of closeness—a sort of generational "cease-fire zone."

Thus, the Gemeinschaft/Gesellschaft distinction provides a theoretical basis for explaining the observed independence between attitudinal consensus and the other solidarity components among family members. It also suggests an alternative specific model of the model in Figure 1. If normative expectations have influence on relationships of family members, then there should be other consequences. One would expect that parents and children with strong commitment to familial norms would be emotionally close and interact often. They can be expected to exhibit greater affection for one another and have more extensive association.

The first proposition reflected in the reformulated theoretical model (Figure 1) is that parent-child affect and association will vary as a positive function of parent and child norms of familism (reflecting normative solidarity). Attitudinal similarity, or consensus, is treated as an independent dimension of solidarity in the new model.

**Objective and Subjective Dimensions of Intergenerational Exchange**

The second major assumption of the revised model is that functional solidarity reflects both objective and subjective aspects of the exchange of resources between parent and child. The objective exchange component reflects the quantity, type, and quality of resources each member of the intergenerational relationship contributes to the other. This objective component of exchange is predicted to vary as a positive function of the strength of individual norms of familial primacy.
and intergenerational affection.

The frequency and magnitude of intergenerational resource transfers indicate something about the relative balance of contributions in the relationship. However, as Mutran and Reitzes (1984) have noted, empirical assessment of "objective balances" is made difficult because the currency of intergenerational exchange is multidimensional: parents and children exchange not only material, but also emotional and physical support. Moreover, as Rossi and Rossi (1990) observe, members of different generations frequently exchange different types of support, contributing what each has in relative surplus (i.e., elder parents may contribute emotional support while middle-aged children contribute physical or material assistance). While it may be difficult to equate such different aspects of intergenerational exchanges as love and money, parent and child do make some assessment of the relative balance in their exchanges (see Aldous, 1987). This represents the subjective exchange aspect of functional solidarity. These assessments of balance are posited to be a function of objective patterns of resource transfers both in the present and accruing over the history of the relationship.

Thus, the second major proposition of the Figure 1 model is that individual perceptions of balance in intergenerational exchanges have a positive impact on feelings of parent-child affection (affectual solidarity) and rates of future interaction (associational solidarity).

Oppportunity Structure for Interaction

Third, the revised model specifies that the opportunity structure for family intergenerational interaction will enable (or constrain) frequencies and types of association and resource exchanges (following Litwak, 1985). For example, if (a) the parent's health restricts his or her activity, and/or (b) the geographical distance between parent and child is great, and/or (c) the adult child has a full-time job, then the frequency of interaction or exchanges may be diminished (see Riley and Riley, 1986).

Affection and Association

The earlier empirical tests supported the prediction of a positive linear relationship between indicators of intergenerational affection and association. Thus, the fourth proposition is that levels of affection will lead to greater likelihood of association between parents and adult children.

We further expect that feelings of affection will be mutually reinforcing within parent-child dyads. That is, the more affection a child feels and communicates to a parent, the greater the parent's feelings of affection for the child, and vice versa.

Implied Causal Ordering

The causal ordering among constructs proposed in Figure 1 reflects assumptions about the degree to which each construct reflects cultural, as opposed to specific familial, influences. For example, the theory predicts that norms of familial behavior reflect cultural expectations that are not reducible to the dynamics of any particular family. Levels of affection among family members, though informed or maintained because of culturally prescribed normative orientations, should more strongly reflect idiosyncratic biographical influences specific to a particular relationship in the family. Our assumption, therefore, is that levels of association will be the most idiosyncratic characteristic of family solidarity, owing to the opportunity structure as well as to levels of normative integration and affection, which influence association. This is reflected in Figure 1, where the constructs reflecting cultural tendencies are exogenous to those we expect to reflect more idiosyncratic family tendencies.

Empirical Test of the Revised Model

The third step in theory development was to test concordance between expectations derived from the revised theoretical model and empirical data. Because of the complexity of the model, we felt it was useful to state explicitly the expected relationships (propositions) between constructs. Unfortunately, we were not able to test propositions involving the exchange dimension of solidarity—either objective or subjective—because the measurement adequacy of the construct was not up to the measurement quality of other constructs (as reported in Mangen, Bengston, and Landry, 1988). The propositions we were able to test with confidence, given our data, are as follows:

P1: a. The more strongly norms of familism are endorsed by the child (reflecting norma-
tive solidarity), the greater his or her affection for the parent (reflecting affectual solidarity).

b. The more strongly norms of familism are endorsed by the parent (normative solidarity), the greater his or her affection for the child (affectional solidarity).

P2: a. The more strongly norms of familism are endorsed by the child, the more frequent his or her association with the parent (reflecting associational solidarity).

b. The more strongly norms of familial primary are endorsed by the parent, the more frequent his or her association with the child (reflecting associational solidarity).

P3: The greater the opportunity for intergenerational interaction, the greater the association between parent and child.

P4: a. The greater the child's affection for the parent, the greater the parent's affection for the child.

b. The greater the parent's affection for the child, the greater the child's affection for the parent.

P5: a. The greater the child's affection for the parent, the more frequent his or her association with the parent.

b. The greater the parent's affection for the child, the more frequent his or her association with the child.

Because the sample for this analysis consisted of all possible combinations of one of the parents (G1) and the "study child" (G2) within each family, some oversampling of individual G2's occurred. Almost 31% of the dyads contained children who appeared in another dyad—for example, a son matched with his mother in one dyad, and with his father in another. This nonindependence between some of the observations created the possibility that observed distributions would be biased. Other analyses of these data (Acock and Bengtson, 1980; Bengtson, 1975; Glass et al., 1986) had utilized a similar sampling-with-replication strategy and found results to be substantively equivalent to those obtained when sampling was without replication. While results reported here reflect the full dyadic sample described above, all analyses were replicated on a sample of 246 independent dyads. There were no substantive differences in model estimates between the two samples (details available from the authors).

Variables

Multiple indicators were obtained for the parent's and the adult child's endorsement of familism norms, feelings of affective closeness for one another, and frequency of various types of interaction. These measures reflect theoretical dimensions of normative, affectual, and associational solidarity, respectively. Each set of empirical indicators has been shown to form an additive scale (reported in Mangen et al., 1988).

Rather than employ the scales directly in our analyses, without correction for measurement properties, we adopted a latent-variable approach, using LISREL (Jöreskog and Sörbom, 1986). This allows the assessment of structural relations between unmeasured or latent solidarity constructs that are hypothesized to account for patterns of variability in the scale items. The major advantage to such an approach is that random measurement error in the multiple indicators can be accounted for, thus allowing estimation of structural relations among the theoretical constructs with such measurement error variance removed. Measures of parent-child residential proximity and parental health were obtained for use as separate indicators of the opportunity structure for interaction. Close residential proximity and good parental health were expected to

Sample

To test these propositions we analyzed responses of 363 older parents (G1's—mean age = 67.1) and 246 middle-aged children (G2's—mean age = 43.8) who took part in the baseline wave (1971) of the University of Southern California Longitudinal Study of Three-Generation Families. Characteristics of the population and sample are described in Bengtson (1975) and Glass, Bengtson, and Dunham (1986). All G1 parents were asked to evaluate their relationship with a randomly assigned "study" son or daughter. The G2 son or daughter was asked to respond to similar items regarding his or her parents. Responses of each parent were matched with the corresponding child's responses, resulting in the 363 matched-pair dyads reported in the analyses to follow.
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Figure 2. LISREL Specification for Nonrecursive Model of Relationship between Normative Integration, Parent’s Affect for Child, and Child’s Affect for Parent

![Diagram of LISREL specification]

indicate greater opportunity for intergenerational association. The various items used to operationalize each of the model constructs, as well as means, standard deviations, lambdas (from LISREL VI), and mnemonics used in subsequent tables, are reported in the Appendix.

Analysis Design

Structural equation modeling was employed to test the nine propositions derived from the revised model. Maximum likelihood estimates of hypothesized structural parameters linking the model constructs were obtained by using LISREL VI. Three distinct sets of analyses were performed:

1. Testing the specification implied by Propositions 4-a and 4-b, that parent’s and child’s levels of affection would be mutually reinforcing. These propositions implied that a nonrecursive structural system should link these constructs, as suggested in Figure 2. The extent to which the data conformed to this expectation was tested first,

### Table 2. Maximum Likelihood Estimates for Structural Equations in Reciprocal Reinforcement Model of Parent-Child Affect

<table>
<thead>
<tr>
<th>Independent Variable</th>
<th>Child’s Affect for Parent</th>
<th>Parent’s Affect for Child</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unscaled Solution</td>
<td>Standardized Solution</td>
</tr>
<tr>
<td>Child’s norms of familism</td>
<td>0.301*** (.09)</td>
<td>0.401</td>
</tr>
<tr>
<td>Parent’s norms of familism</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Child’s affection for parent</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Parent’s affection for child</td>
<td>0.102 (0.27)</td>
<td>0.101</td>
</tr>
</tbody>
</table>

R²: .216
χ²: 121.31
df: 69
GFI: .955

Note: Standard errors are in parentheses.

*p < .05. **p < .01. ***p < .001.
since proper identification of a larger structural equation model containing all constructs would be affected by whether the relationship between parent and child affect was nonrecursive or recursive.

2. Assessing the relative goodness-of-fit of a combined measurement and structural relations model reflecting these propositions, as compared to a number of other plausible models. In addition, we assessed the degree to which the fit of the theoretical model to the data could be improved by relaxing various constraints on measurement error covariances.

3. Assessing the structural relations between constructs in a best-fitting model in order to evaluate each of the remaining propositions (1-a, 1-b, 2-a, 2-b, 3, 5-a, 5-b).

Results

Maximum likelihood estimates of the structural parameters in Figure 2 are given in Table 2. We first analyzed the degree to which the model in Figure 2 adequately fit the data. We found that a substantially improved fit could be achieved by allowing the measurement errors associated with two indicators of parent’s affect for child to covary (CAF1 and CAF2). It is plausible that factors contributing to error in responding to the “trust” (CAF1) and “respect” (CAF2) items could be correlated. Therefore, they were allowed to covary in the model estimation reflected in Table 2. The low ratio of chi-square to degrees of freedom and the high goodness-of-fit index associated with this model (Jöreskog and Sörbom, 1986) indicate an acceptable fit to the data.

Examination of Table 2 indicates that the parameter corresponding to the direct influence of child’s affect for parent on parent’s affect for child is significant and positively signed; however, the corresponding coefficient for the reverse effect does not reach significance. Proposition 4-a
was therefore supported by the results of the preliminary model estimation, while Proposition 4-b was not. This empirical finding suggests that a direct path from parent's affect for child to child's affect for parent should be omitted from any larger model linking all of the theoretical constructs. The results also suggest support for Propositions 1-a and 1-b. The coefficients corresponding to the paths from child's familialism norm to child's affect, and from parent's familialism norm to parent's affect, are significant and positively signed.

Figure 3 outlines the fully specified theoretical model reflecting eight of the original propositions, as informed by the preliminary analysis of the nonrecursive system depicted in Figure 2. The plausibility of the theoretical model as appropriate to the data was assessed by comparing its fit with models proposing alternate plausible specifications.

Table 3 contains a number of indices allowing comparisons of the fit of the theoretical model (M₃) with alternate model specifications.

<table>
<thead>
<tr>
<th>Model</th>
<th>df</th>
<th>χ²</th>
<th>GFI</th>
<th>RMSR</th>
<th>Bentler and Bonett Normed Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>M₃: null</td>
<td>253</td>
<td>3,888.40</td>
<td>.398</td>
<td>.440</td>
<td>—</td>
</tr>
<tr>
<td>M₃: no structural relations</td>
<td>226</td>
<td>1,010.26</td>
<td>.815</td>
<td>.152</td>
<td>.740</td>
</tr>
<tr>
<td>M₃: fully recursive structural model</td>
<td>211</td>
<td>659.27</td>
<td>.858</td>
<td>.057</td>
<td>.830</td>
</tr>
<tr>
<td>M₃: theoretical model</td>
<td>217</td>
<td>663.29</td>
<td>.857</td>
<td>.059</td>
<td>.830</td>
</tr>
<tr>
<td>M₃: M₃ + 5 correlated measurement errors</td>
<td>212</td>
<td>484.68</td>
<td>.900</td>
<td>.055</td>
<td>.875</td>
</tr>
</tbody>
</table>

Notes: aGoodness-of-fit index (Jöreskog and Sörbom, 1986). bRoot mean square residual.

The model in Figure 3 differs with M₁ in that it does specify structural relations among the constructs. The model in Figure 3, however, is overidentified, since a number of possible paths between exogenous and endogenous variables are posited to be zero. One plausible alternative model specification is that direct paths should exist from each of the exogenous variables to each endogenous variable, in addition to the relations posited among endogenous variables in Figure 3. A fully recursive, just-identified model for the structural relations between variables was estimated (M₃) in order to test the improvement in fit over M₁, as well as to provide a comparison model from which to assess the acceptability of the overidentifying restrictions implied in Figure 3. M₃ provided a significant improvement in fit over M₁ (Δχ² = 350.99, df = 15, p < .001).

A model conforming to the theoretical specification in Figure 3 (M₃) was estimated next. The decrement in fit attributable to the overidentifying restrictions was assessed by evaluating the gain in chi-square over M₃. The difference in chi-square was not statistically significant (Δχ² = 4.02, df = 6, p > .05), indicating that M₁ fit the data as well as M₃, in spite of the specified overidentifying restrictions.

While M₁ provided a much better fit to the data than M₅ and M₆, the resulting moderate ratio of chi-square to degrees of freedom (and marginal GFI and normed index values) suggested that the fit of M₃ could be improved further. An evaluation of the normalized residuals and modification indices provided by LISREL indicated that the fit of M₃ could be significantly improved by allowing five measurement errors in the measurement models of the endogenous variables to covary. Each pair of items hypothesized to have correlated measurement errors was assessed in order to determine whether or not such an assertion of co-
Table 4. Maximum Likelihood Estimates of Structural Relations between Constructs in G1-G2 Solidarity Model (M2)

<table>
<thead>
<tr>
<th>Exogenous Variable</th>
<th>Endogenous Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Child's Affection for Parent</td>
</tr>
<tr>
<td></td>
<td>Unscaled</td>
</tr>
<tr>
<td>Child's norms of familism</td>
<td>0.334*** (0.06)</td>
</tr>
<tr>
<td>Parent's norms of familism</td>
<td>—</td>
</tr>
<tr>
<td>Child's affection for parent</td>
<td>—</td>
</tr>
<tr>
<td>Parent's affection for child</td>
<td>—</td>
</tr>
<tr>
<td>Good parental health</td>
<td>—</td>
</tr>
<tr>
<td>Parent-child proximity</td>
<td>—</td>
</tr>
</tbody>
</table>

R² = .197, .221, .641

Note: Standard errors are in parentheses.
*p < .10, *p < .05, **p < .01, ***p < .001.

Propositions 2-a and 2-b fared less well in the empirical test. Though the parameter estimate for the effect of child's familism norm on parent-child association is significant, the coefficient is negatively signed, revealing no support for Proposition 2-a. The coefficient for parent's familism norm in the parent-child association equation is positively signed, but its associated probability reaches only marginal levels of statistical significance (i.e., .05 < p < .10).

The significant parent-child proximity and parent's health coefficients in the association equation indicate support for Proposition 3-a. As predicted, the effect of proximity on association is very strong. The relationship between good parental health and higher levels of the types of association included in our measures is much weaker, but it does reach marginal statistical significance.

The initial test of the nonrecursive system described above indicated that Proposition 4-a was supported, while 4-b was not. The estimate of the coefficient for child's affect in the parent's affect equation shown in Table 4 corroborates this support for Proposition 4-a.

Propositions 5-a and 5-b were supported by the data. Parent's affect for the child was strongly associated with parent-child association. The standardized coefficient reflecting this relationship indicates that the influence of parental affect on association is nearly half as strong as the influence of proximity. The relationship between

variance seemed plausible. In each case, the assertion did seem appropriate. We thus estimated M₄, a special case of M₃ that allowed the measurement errors among the following pairs of items to freely covary (PAF1 and PAF2; PCAS1 and PCAS6; PCAS3 and PCAS4; PCAS5 and HELP; PCAS6 and HELP). M₄ provided a significantly better fit than M₃ (Δχ² + 178.61, df = 5, p < .001) and produced a GFI and normed index that suggested the model fit the data adequately.

Tests of the propositions were then carried out by employing parameter estimates generated by M₄. Table 4 provides maximum likelihood estimates of the structural relations between the revised model constructs. Table 4 indicates that the variables in the formal system accounted for a substantial portion of the variance in parent and child affection and association. Approximately 20% of the variance in child's affect, 22% of the variance in parent's affect, and 64% of the variance in parent-child association were explained by M₄.

Examination of the individual estimates in Table 4 reveals that individual levels of normative familism significantly predicted levels of affection for parent or child. The path from child's norms of familism to child's affect for parent, as well as the path from parent's norms of familism to parent's affect for child, are significant and positively signed. Propositions 1-a and 1-b were thus supported by these data.
child’s affect for parent and parent-child association was also significant, although its impact was less than half of that of parental affection.

**Discussion and Conclusions**

The empirical analyses presented here provide support for seven of the nine propositions drawn from the revised model of parent-child solidarity. Figure 4 summarizes the connections between constructs supported by the data. Norms of familialism appear to be strongly predictive of parent-child affective orientations (P1-a and P1-b are supported by the data). However, the data also suggest that whatever effect familialism norms may have on association is exerted through increased levels of affect they may engender. High levels of parent and child affect for one another were found to be associated with high levels of parent-child association (P5-a and P5-b are supported). We found only a weak positive direct relationship between parent’s familialism norm and association (P2-b is supported). In contrast, a fairly strong negative direct effect of child’s familism on association was discovered (P2-b is not supported). The latter finding may reflect cognitive dissonance, wherein children who cannot associate often with parents, because of competing demands or other structural barriers, may more strongly internalize the expectation that they should be closer to their parents. Greater opportunity for interaction, as indicated by residential proximity and good parental health, was found to predict higher levels of association (P3 was supported). And finally, child’s affection for parent was found to have a much greater influence on parent’s affection for the child than vice versa (P4-a is supported, but P4-b is not supported).

To summarize, the empirical tests of the revised model provide support for the theoretical view that normative solidarity—expectations that adult children and aging parents should perform familial roles and obligations—makes important contributions to affectual and associational solidarity, as suggested by Tönnies (1887/1957). Both parent’s and child’s level of normative commitment to the intergenerational family were positively related to levels of affection between parent and child. Levels of affection, in turn, were found to predict higher levels of association. In addition, indicators of a more open opportunity structure for interaction (residential proximity and good

**Figure 4. Elements of Revised Model Supported by Empirical Test**
parental health) were found to be positively related to association (unfortunately, we do not have adequate indicators of exchange given and received; thus the important parts of the model involving exchange relationships could not be tested).

Just as one disconfirming study is not usually enough to require abandonment of a particular theory, one confirming study is rarely enough to solicit complete acceptance. Several iterations of empirical testing in varying contexts are necessary before theorists gain confidence in one (of potentially many) conceptualization. Our own test of some elements of the revised theory, while supportive, is limited in both scope (not all elements of the theory were tested) and design (cross-sectional assessment limits causal inferences and assessment of feedback loops). However, one advantage of explicit (or formal) theory development is that it allows a summary of progress in understanding a problem and suggests directions for the next steps in explanation. We conclude with some suggestions for future directions in predicting and explaining parent-child relationships.

First, we think the most obvious next step would involve examining empirically the theoretical expectations that we were unable to evaluate in this study. In particular, researchers should examine in greater detail the exchange dynamics in intergenerational relationships, especially as they relate to family norms, perceptions of reciprocity, and affection. Do normative expectations influence levels of intergenerational resource exchange? Do perceptions of exchange reciprocity encourage greater intergenerational affection? What is the role of dependency or other resource levels in cross-generational exchange? One potentially fruitful line of research would be to examine the extent to which patterns of intergenerational exchange become ritualized—as suggested by Collins (1975)—and how these norms inform or are informed by normative expectations, perceptions of reciprocity, and affection.

Second, another necessary next step is to examine seriously the way the constructs are ordered in the revised model. This ordering reflects our assumptions regarding the primacy of forces exogenous to the family. Cross-sectional data are not adequate to assess the plausibility of the structure flowing from these assumptions. Longitudinal designs are optimally suited to assess issues of variable ordering, and we hope future efforts employ such a strategy in data gathering when possible. These efforts should, however, be attentive to the fact that these particular parent-child relationships are long-term, which makes determining appropriate assessment points somewhat complicated.

The present model has been developed in the context of the lack of long-term longitudinal assessments of the six proposed intergenerational solidarity elements. Thus, the model reflects a greater reliance on "here-and-now" imagery—specifying relationships between variables over a relatively short time interval or as may be reflected in correlations evident in any one assessment. However, as Rossi and Rossi (1990) have pointed out, levels of such variables as normative commitment and mutual affection reflect the long history of the relationship between older parents and middle-aged children. The Rossis, while proposing structural relations among four of the five solidarity constructs very similar to those presented here, suggest that in order to understand current levels of affection, association, and exchange among adult parents and children, one must have some knowledge as to levels of affection, cohesion, and normative integration in the early family experience. Future researchers will have to determine time spans for their designs appropriate to the particular aspects of parent-child solidarity they wish to examine.

A third need flows from our recognition that more work is required to achieve an adequate theory of family solidarity. The model presented and tested here is only one plausible way to order the elements of family solidarity. Future research needs to examine further the extent to which family norms may explain variability in affection, association, and exchange. In addition, models of how consensus and exchange interrelate with all of the other solidarity elements need to be refined and tested empirically. A complete theory of family solidarity should also specify both exogenous predictors of each element as well as consequences of family solidarity for individual well-being.

In closing, we note that a complete theory of family solidarity will develop only through closely connected conceptual and empirical work. One purpose of this article has been to show the benefits of formal model testing for theory development. We contend that the dialectic between empirical test and formally stated propositions will facilitate the continued refinement of a theory of
family solidarity. Each iteration between ideas and observations provides new and often serendipitous information (Turner, 1986) from which a better understanding of family solidarity will emerge.

NOTE

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APPENDIX

TABLE A. MEANS, STANDARD DEVIATIONS, AND LAMBDAS FOR EMPIRICAL INDICATORS EMPLOYED IN ANALYSES

<table>
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<th>Concept</th>
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aExact item wordings and response options are available in Mangen et al. (1988).
bParameters fixed by scaling.