MEASURING INEQUALITY WITHIN THE HOUSEHOLD

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The purpose of this paper is to explore a number of measures of inequality within households. We focus primarily on two types of inequality, first, inequality in money incomes, second, inequality in control over household resources. Control is measured in two ways: first, as control over the management of household finances and, second, as influence over household decision-making. We discuss arguments for and against each of the measures of inequality, and compare the measures against one another in terms of the level of inequality each measure finds. The paper does not attempt to explain inequality; instead, its aim is to discuss the question "What is it that we wish to explain?"

> *Perhaps less important, but also revealing, within the 21–34 age group, 90 percent of the males and 80 percent of the females felt that the other partner had more closet space. ("Poll suggests young marriages in big trouble."* The Ottawa Citizen, *August 19, 1990.)*

INTRODUCTION

The purpose of this paper is to explore a number of measures of inequality within households. The innovative feature of the paper is that it measures inequality in control over household resources. Control is measured in two ways: first, as control over the management of household finances and, second, as influence over household decision-making. We discuss arguments for and against each of the measures of inequality, and compare the measures against one another in terms of the level of inequality each measure finds. The inequality measures are implemented using data from the 1988 Winnipeg Area Study (WAS). The WAS is uniquely suited for this study in that it contains a wealth of information on how households make decisions and manage their finances.

There are compelling reasons for measuring intra-household inequality. First, intra-household inequality is pervasive across both industrialized and developing nations. Studies of intra-household inequality in developing nations include, for example, Thomas (1990), Behrman and Deolalikar (1990), and Haddad and Kanbur (1990b). Hariss (1990) and Dreze and Sen (1989, Ch. 4) provide surveys of the earlier literature. Evidence of intra-household inequality in industrialized countries is provided in Apps and Savage (1989), Antonides and Hagenaars

(1992), Lazear and Michael (1986), Gronau (1985) and Browning, Bourguignon, Chiappori and Lechene (1993).

Second, vital policy issues are intrinsically linked to intra-household inequality. Any estimate of men's, women's and children's relative access to goods, services and leisure must make some assumption about how resources are shared within households (Fuchs, 1986, p. S253). Furthermore, to the extent that women have a higher propensity to spend on children than men (Thomas, 1990), mothers' access to income is a more important determinant of children's health than the total household income. This in turn has implications for the appropriate targeting of transfer payments to households (Haddad and Kanbur, 1992). Child benefit paid directly to the mother may be spent differently from benefits received by the higher earner (usually the father) through a tax exemption.

Intra-household inequality also has implications for taxation policy. In the U.S., married couples are generally taxed on the basis of their combined income, whereas in many other countries taxes are based on individual incomes. If income is completely shared between married couples, combined income gives a better indication of ability to pay for tax purposes. However, if household members keep their incomes separate, individual income will be a better indication of ability to pay taxes.

Intra-household inequality has been neglected in the past in part because of a belief that what happens in the household is a private matter, outside of state purview. Yet a phrase that captures this point of view, "a man's home is his castle," reveals also its gender bias, with the underlying suggestion that a man is lord and master over wife, children and servants. Given that many women, particularly full-time home-makers, are dependent upon their partners for economic support, ignoring how resources are allocated within households means ignoring these women's economic well-being.[1]

While recent literature has made a major contribution to recognition of intra-household inequality and to our understanding of how households allocate resources, all of the methods used in the literature at present are imperfect. One method of estimating the extent of inequality within the household is to use labour supply data. For example, Chiappori (1992) argues that information about labour time tells us how much leisure each spouse has. By observing how leisure is shared, we can infer the household's "sharing rule," and how the division of consumption between spouses changes in response to changes in incomes or prices.[2] However, as Apps and Rees (1993) point out, time outside the labour force is often spent in household production, not pure leisure. Estimates of intra-household resource allocation which assume otherwise are likely to give seriously misleading results.

An alternative approach is to use expenditure data to measure intra-household inequality. For example, Lazear and Michael (1986) use expenditures on alcohol, tobacco, and adult clothing to estimate the fraction of household income allocated to adult consumption, while Browning et al. (1993) use expenditures on adult clothing to infer a sharing rule that describes how consumption is divided between men and women. Haddad and Kanbur (1990b) estimate the magnitude

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[1]We are indebted to an anonymous referee for raising the issues discussed in this paragraph.
[2]To be strictly accurate, the sharing rule can be observed up to some constant (Chiappori, 1992).

of intra-household inequality using data on individual household members' consumption of food. Unfortunately, these diverse methods of using expenditure data encounter several common difficulties. First, there are only a small number of commodities which, because their consumption can be unambiguously assigned to men, women or children, can be used to indicate inequality in consumption. There is strong evidence that expenditure data for two of these items, alcohol and tobacco, is unreliable. Atkinson, Gomulka and Stern (1990) point out that, in the British Family Expenditure Survey, the share of alcohol in family expenditure is around 4.5–5 percent, a long way short of the portion indicated by the national accounts (7.5 percent). Moreover, the three items together make up a small fraction of household expenditures. Finally, variations in consumption of clothing or tobacco may be due to variations in preferences or other factors, such as age or occupation, which are independent of the extent intra-household inequality, particularly given the addictive nature of alcohol and tobacco.[3]

In summary, studies of labour supply and expenditure provide a partial picture of inequality within households. The purpose of this paper is to discuss how standard approaches to inequality measurement can be refined to reflect possible inequalities within households, and to develop and evaluate four alternative measures of intra-household inequality. Our measures complement those developed in the previous literature; putting the methods together gives a better, more comprehensive picture of intra-household inequality. The major innovation of this paper is that it measures, albeit imperfectly, inequality in the exercise of command over resources within the household.

Before introducing the measures of inequality considered in the paper, it is necessary to discuss the summary statistics and indices we will calculate for each measure. These indices, described in the next section of the paper, are used to compare and assess each measure.

SUMMARIZING INTRA-HOUSEHOLD INEQUALITY

There are three basic ways to summarize the extent of inequality in the household, each of which will be utilized in this paper. Although we focus our discussion on the measurement of income inequality, the three methods discussed in this section can be, and in several cases have been, used to summarize inequality in earnings, consumption, full income, or income adjusted for sharing within the household.

The first way of summarizing the results of an intra-household inequality study is to compare the amount of inequality in the distribution of household income or consumption and the amount of inequality in the distribution of individual income or consumption. The inequality in each distribution can be described using an inequality index such as the coefficient of variation, Gini coefficient, or Atkinson index (for a discussion see Atkinson, 1980). For example, in Table 1 we compare the Gini coefficient for the distribution of household

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[3]Although Browning et al. (1993) control for these variations by comparing the clothing demands of single and two person households, and by restricting their sample to couples in which both members were employed full-time.

incomes, the Gini coefficient for individual incomes, and the Gini for individual incomes adjusted to reflect the sharing of resources within households. The difference in the measured inequality of the household and individual income distributions indicates the extent to which ignoring intra-household distributional considerations underestimates the extent of inequality. This method is used in Haddad and Kanbur, 1990b and Apps and Savage, 1989. The advantage of this approach is that it presents results using standard measures familiar to policy makers and researchers in inequality measurement. One disadvantage of the approach, however, is that it does not give a direct measure of the amount of inequality within households.

A second approach concentrates exclusively on measuring inequality within households. A summary measure of inequality is calculated separately for each household. For example, Browning, Bourguignon, Chiappori and Lechene (1993) estimate the share of household income going to the wife, while Haddad and Kanbur (1990a) calculate the difference between the higher and lower income spouse's share of household income. The Haddad and Kanbur inequality index can be written as:

$$HK = 2\left(\frac{X_1}{X} - \frac{1}{2}\right) = \frac{|X_1 - X_2|}{X}$$

where X_1 is the income of the better off spouse, X_2 the lower earning spouse's income, and X is total household income. The inequality index takes on a minimum value of zero when partners divide the household income equally, and a maximum value of 1 when one spouse enjoys the entire household income. The advantage of the Haddad-Kanbur index is that it gives a direct indication of the amount of inequality within households.

A third way of summarizing the importance of intra-household inequality is to compare gender differences in income by calculating the ratio of average female incomes (or consumption) to average male incomes (see, for example, Fuchs, 1986). The income ratio index is calculated as:

$$\text{income ratio} = \frac{\bar{X}_f}{\bar{X}_m}$$

where $\bar{X}_f$ is average female income and $\bar{X}_m$ is average male income. An advantage of this measure is that it is easily compared to readily available figures on male–female wage differentials, and it shows how much (or how little) income sharing within the household compensates for differences in male and female earnings. A possible disadvantage of the measure is that it allows inequality benefiting females to cancel out with inequality benefiting males. Take, for example, two couples, one in which the female partner has income of $75,000 while the male's income is $25,000, while in another in which the situations are reversed.[4] The income ratio index (calculated over both households) will be 1, indicating no overall

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[4]Although we refer to income, the analysis applies equally to an analysis of consumption or earnings.

inequality while the Haddad-Kanbur measure (calculated separately for each household) will be 1/2.

In this paper we use all three approaches to summarize the extent of intra-household inequality, and show how alternative measures of resource allocation within households change each summary statistic. The source of the data used in the study is described below, then four alternative measures of intra-household inequality are assessed.

THE WINNIPEG AREA STUDY

The data used in this paper is taken from the WAS. The study was carried out by researchers from the sociology department at the University of Manitoba and the University of Winnipeg.[5] Addresses were selected at random for interviewing from a list compiled from the 1987 property tax assessment. Only one person was interviewed in each household. Households were designated as male or female respondent households prior to the initial interviewer contact.

This study is based on a sub-sample of the WAS containing 314 respondents who were married or living with a partner. 190 of the families had children living at home. Comparisons with the 1986 census indicate that the WAS is a fairly representative sample of the Winnipeg population (Currie, 1988). Although the data set is fairly small, it contains unusually rich information on household financial management and decision-making.

Measure 1: Standard Approaches

There are two standard approaches to measuring inequality. The first is to take the household as the unit of analysis, and measure inequality in household income. A common criticism of this approach is that it makes no allowance for variations in household size—a one person household with an income of $30,000 may have a higher standard of living than a two person household with an income of $40,000. The second standard approach focuses on inequality in "equivalent household income" (Wright, 1992). Equivalent household income is calculated by adjusting household income for variations in household size, using an equivalence scale.

The WAS contains data on household and respondent income before tax and other deductions.[6] The income data is collected in intervals of $2,000 to $5,000, with the highest interval being $80,000 and above. To facilitate calculations throughout the paper we evaluate income observations at interval means. Respondents in the $80,000 and over category are assigned an income of $90,000. We calculate spouse's income by subtracting respondent income from household income. Both spouses' incomes are subject to a certain degree of measurement error. While we recognize that measurement errors will directly affect the perceived

[6]Respondents were not asked about government transfer payments, and the fact that five respondents reported household incomes below the social assistance level suggests that they did not include government transfers in their income.

extent of intra-household inequality, we believe this study is valuable both as an illustration of new methodologies of inequality measurement, and as an indication of the potential sensitivity of measured inequality to alternative assumptions about intra-household income sharing.

Table 1 presents the two standard measures of inequality. The first takes the household as the unit of analysis (Measure 1–h). The second calculates the equivalent household income for every individual in the sample (Measure 1–ehi), using the equivalence scale implicit in Statistics Canada's Low Income Cut-offs (1978 base). Both household-level measures of inequality give similar results.

The household equivalent income calculations impute an income to every individual in the respondent households. These calculations assume equal sharing (Wright, 1992). Each member of the household enjoys the same level of income. The amount of intra-household inequality as measured by the Haddad–Kanbur index is, therefore, zero. Since all the women in the sample have the same income as their husbands, and the sample consists entirely of married or cohabiting couples, the female/male income ratio is one. Standard approaches to inequality measurement presume that there is no inequality within the household.

TABLE 1

SUMMARY OF INEQUALITY MEASURES

| | n^a | Coef. of Variation | Gini | Atkinson Index, | | | H-K | $\dfrac{\bar{X}_f}{\bar{X}_m}$ |
				$\varepsilon = 0.5$	$\varepsilon = 1.0$	$\varepsilon = 2.0$		
Measure 1–h Household	252	0.47522	0.26548	0.05957	0.12498	0.28224		—
Measure 1–ehi Equivalent household income	252	0.49479	0.26962	0.06131	0.12768	0.29245	0.000	1.0
Measure 2 Individual income (respondents only)	263	0.70070	0.36750	0.11853	0.24578	0.49744	0.451[b]	0.54
Measure 3 Control over financial flows	252	0.61631	0.33696	0.10725	*	*	0.225	0.87
Measure 4 Decision-making	253	0.5564	0.30743	0.08414	*	*	0.191	1.23
Measure 5 Perceived inequality	249	0.49706	0.27935	0.07458	*	*	0.040	0.99

Note: The coefficient of variation, Gini coefficient and Atkinson index were computed using the package INEQ, developed by Frank Cowell of the London School of Economics. The measures are calculated evaluating each observation at the interval mean. Using interval data where possible did not produce substantially different estimates.
[a] Number of respondents.
[b] Respondents plus spouses.
*Cannot be computed due to presence of individuals with zero incomes.

Measure 2: Inequality in Individual Incomes

A starting point for an analysis of inequality within the household is the earnings and other income of men and women. There are two reasons to study inequality in individuals' incomes. First, it is straightforward to calculate and easy

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to interpret as a measure of the degree of inequality within households, and it can easily be compared to other inequality measures. Second, economic models of the family predict that inequalities in income will produce inequalities in household members' levels of well-being. For example, in McElroy and Horney's (1981) model, higher earnings improve a partner's "threat" point—the level of well-being he or she would enjoy in the event of a marital breakdown—thereby improving her bargaining position and final level of utility. This is important to bear in mind when interpreting the results which follow. The extent of inequality in individual incomes gives one indication of the extent of inequality in individuals' bargaining positions within marriage.

Shifting the focus from household to individual incomes results in a dramatic increase in measured inequality.[7] The value of the Atkinson inequality index ($\varepsilon = 0.5$ and $\varepsilon = 1.0$) almost doubles, while the Gini coefficient increases by more than one-third. That the increase is due to an increase in intra-household inequality can be seen by examining the Haddad Kanbur index. The mean value of the Haddad–Kanbur inequality index rises from zero under Measure 1–ehi to 0.451 (standard deviation 0.311).

The reason for this rise in inequality is that women have substantially lower incomes than men, in part because fewer women than men are active participants in the labour force, and in part because women working full-time earn less, on average, than men do. Average female incomes ($\bar{X}_f$) are just 54 percent of average male incomes ($\bar{X}_m$) in this sample.

If the standard measures of inequality underestimate the extent of inequality by ignoring inequality within the family, Measure 2 overestimates the extent of inequality by ignoring income sharing within the family.[8] Family members may share financial resources, as when, for example, all incomes are deposited into a joint bank account, and may also share physical resources, such as shelter or home entertainment. Studies of intra-household inequality to date have primarily concentrated on the sharing of physical resources. An alternative approach to measuring inequality within households focuses on control over resources, particularly financial resources. Amartya Sen (1981) suggests that we need to move away "from the tradition of thinking in terms of what exists rather than in terms of who can command what" (cited in Millar and Glendinning, 1989). A person with control over household decisions can guarantee that the consumption bundle the household chooses reflects her preferences. The thrust of this paper is that it is possible to observe, at least partially, the exercise of command over resources within the household.

Household members command resources when they flow into the household as income and when they are dispersed as expenditures. Measure 3, inequality in control over financial flows, measures command over income. Measure 4, inequality in decision-making, measures household members' control over expenditures. A fifth measure focuses on perceptions of inequality.

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[7]Individual income calculations are based on respondent incomes only. Respondents' incomes are measured with a much greater degree of accuracy that respondents' spouses' incomes.

[8]They also ignore household production, which may add to the resources of family members not engaged in market work.

Measure 3: Inequality in Control over Financial Flows

A number of authors have suggested that data on access to financial resources can be used to provide improved estimates of poverty and inequality (Pahl, 1989; Millar and Glendinning, 1989; p. 376; Jenkins, 1991). Family members may not have ready access to the earnings of those participating in the labour market. Indeed, a study by Pahl (1989, p. 1) documented a number of families in which the husbands had substantial incomes, but kept so much for their own use that their wives and children lived in poverty. Rowntree used the term "secondary poverty" to describe this phenomenon almost a century ago (cited in Pahl, 1989).

There are a wide variety of ways in which families manage their finances, certain of which allow family members equal access to household resources, and certain of which do not. One of the great strengths of the WAS is the information it contains on family financial management. The study asked respondents which had one main income earner the following question: "Now let's talk about the main household income and how the majority of it is handled. Do you handle most of it, does your spouse/partner handle most of it, does it go into a common fund which each member can draw on as needed, or is it divided among the household members?" Table 2 presents the results.

TABLE 2

ONE MAIN EARNER COUPLES

	M (%) N = 124	F (%) N = 126
I handle most	31	28
Spouse/partner handles most	22	21
Other handles most	2.4	0.8
Common fund	37	45
Main income divided	6.5	2.4
Other	0.8	3.2

The majority of survey respondents consider themselves to be one main earner couples, so that most of the individuals in the sample are included in this table—124/150 male respondents and 126/157 females. Among these one main earner couples, 37 percent of male respondents and 45 percent of females replied that the "main income goes into a common fund." More respondents of both sexes see themselves as handling the finances than see their spouse or partner as the money handler, that is, men's and women's responses are inconsistent.

In the one main earner couples respondents who were *not* the main earner were asked: "Would you say that you put all of [your individual income] into a common fund where you and your spouse/partner can use it as needed, keep and use most of your income yourself, give most of it over to your partners, or do you save your all of your income." By far the most common response was that income was placed in a common fund (77 percent of 22 males and 72 percent of 85 females). One reason for the greater prevalence of the common fund response among this group may be that the alternatives offered in this case, for example, "use most myself" were less appealing to respondents than the alternatives given in the question about the main earner's income. About 5 percent of respondents

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TABLE 3

No Main Earner Couples

	M (%) N = 26	F (%) N = 31
One person uses most of the income to cover major household expenses, each gets amount for personal use	7.7	9.7
Each member looks after own income, major expenses divided	38	23
Combined income is used as common fund	42	61
Live off one income and save other	0	0
Whoever has the money when needed pays the bills	3.8	6.5
Other	7.7	0

gave most of their income over to a spouse or partner. Women were more likely than men to "keep and use most myself" (13 percent compared to 9 percent), while men were more likely than women to save all their income (9 percent versus 2 percent).

Table 3 presents data for couples with no main earner. The common fund approach is slightly more common among these couples than among those in Table 2. The main difference between these two groups is the prevalence of "independent management," a system in which each person looks after his or her own income, among no main earner couples.

We can make inferences about the degree of income sharing from our knowledge of how households manage their finances. First, it seems reasonable to suppose that, if respondents state that an income goes into "a common fund which each member can draw on as needed," that income is shared. We assumed that all incomes going into a "common fund" were shared equally. Similarly, if a respondent stated that an income is divided among household members, we assumed that it was divided equally. These assumptions may understate the actual amount of inequality within these households. It may be the case that one partner has to account to the other for his or her withdrawals from the common fund, feels guilty about spending the other's earnings, or is criticized for inappropriate withdrawals.

The second broad category of financial management system has one person handling most of the income. It is not obvious how to interpret these systems. Managing the family's finances has routine, chore-like elements, for example, paying for the groceries. Yet at the same time, a person has access to the family's financial resources has a certain amount of control over these resources. Interestingly enough, a number of authors (Wilson, 1987; Pahl, 1989) have found that women have greater responsibility for handling money in low income households. In these households making ends meet requires careful budgeting, and there are little opportunities for making large, discretionary expenditures. Financial management is more of a chore and confers less control. High income households, on the other hand, are more likely to have a husband manager or joint management.

It seems to us that a crucial question in single person handling systems is "who is the gatekeeper"? Who is in a position to control other family member's access to the household income? When an income earner confers responsibility

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for handling the family finances to another family member, there is at least a partial sharing of the gatekeeper or controlling role. Accordingly, we divided these incomes equally between the two spouses. On the other hand, if the income earner retains responsibility for handling his income, he is potentially the sole gatekeeper. We therefore assign the income entirely to the person who earned it. This may overstate the actual amount of inequality in the households in that other household members are likely to have partial access to the earner's income.

In summary, then, incomes were assumed to be divided equally except in those situations when the spouse who earned the income retained control over it.

Allowing for sharing of financial resources (Measure 3) reduces income inequality as compared to Measure 2, but still results in a higher level of inequality than under conventional measures (Measure 1-h and 1-ehi). The coefficient of variation, Gini and Atkinson indices all fall. The mean value of the Haddad–Kanbur income inequality index drops to 0.225, in large part because the majority of the sample had inequality indices of zero. The drop in inequality reflects the large number of households that adopt pooling strategies of financial management, or have the lower earning spouse handling the family finances.

Measure 3 is an improvement over Measure 1, because it recognizes that resources are not always allocated equally within households. It is also an improvement over Measure 2, because it recognizes that family members share resources. Yet, with better data, Measure 3 could be refined considerably.

First of all, we need more detailed quantitative information. If a respondent replies "I handle most" of the income, we would like to know how much she handles, how much her partner handles, and how the income she handles compares with the expenditures for which she is responsible. One way of obtaining that information would be to trace the flow of each source of income through the household. For example, what happens to each partner's pay cheque? Is it cashed, put in a separate bank account, or deposited into the joint bank account? Secondly, we need more information about access and accountability. When income is placed in a common fund, do both partners have equal access to the fund? Is one accountable to the other?

Finally, the inconsistency between men's and women's responses found in Tables 2 and 3 (also in Measure 4 below) demonstrates that it is vital to collect data from both spouses. Little is known as yet about the source of these inconsistencies. Perhaps men's and women's experiences lead them to understand the world differently, as argued by feminist researchers (see Harding, 1986, p. 141). Alternatively, the inconsistency between men's and women's responses may be a form of interviewer bias, if men and women have different notions of what constitutes a 'desirable' answer to survey questions, or if interviewers have different expectations of men and women. Inconsistencies between men's and women's responses are beginning to attract attention as statistical agencies collect more data on household production, and discover that men and women do not agree on how much housework each does (see, for example, Marshall, 1993, p. 24). More research is needed to discover the significance of inconsistencies between men's and women's responses for the collection of economic data.

There are a number of studies of family finances presently under way, including the British Household Panel Study (Laurie, 1992), and a survey being

conducted by the authors, which will permit refined estimates of control over family financial resources.

Measure 4: Inequality in Decision-Making

Measure 3 adjusts inequality estimates to take account of inequality in the command over income flowing into the household. Measure 4 focuses on inequality in control of the household's expenditures or decision-making.

Identifying inequality in decision-making is not entirely straightforward. Data on who makes which household expenditures is flawed. The actual process of shopping and deciding whether broccoli or cauliflower is the best buy is a routine, time consuming and occasionally tedious task. If there are inequalities between spouses, one manifestation of the inequality may be that the more powerful spouse is able to delegate the more tiresome aspects of shopping while maintaining control over decisions.

Safilios-Rothschild (1976) uses the terms 'orchestration power' and 'implementation power' to distinguish between two types of decision-making authority:

> "Spouses who have 'orchestration' power have, in fact, the power to make only the important and infrequent decisions that do not infringe upon their time but that determine the family life style and the major characteristics and features of their family. They also have the power to relegate unimportant and time-consuming decisions to their spouse who can, thus, derive a 'feeling of power' by implementing those decisions within the limitations set by crucial and pervasive decisions made by the powerful spouse." (p. 359.)

Pahl (1983) makes a similar distinction between 'management' of household resources—for example, deciding whether to buy term or whole life insurance—and 'budgeting'—deciding whether to buy tinned beans in bulk or as needed.

There is a subtle interaction between orchestration power and implementation power which some might refer to as the "principal/agent" problem. It may be a chore to shop for groceries, but if the partner who does the shopping likes dark meat, and the non-shopping partner likes light, the household may end up eating chicken legs instead of breasts. The shopper, or "agent" makes choices. However, some people may feel themselves constrained in choosing between light and dark meat by the knowledge of what might await them if they return home with chicken legs—constraints imposed by the "principal." The exercise of implementation power is constrained by economic resources, social norms such as norms about "what's good for you," knowledge, physical strength or the family's system of financial management. The inequality in control over the family's finances documented in Measure 3 above may constrain individuals' decision-making.

A second theoretical difficulty is that divisions in decision-making may be part of an efficient division of labour within the household. For example, it may be efficient to assign one household member the task of remembering birthdays and shopping for gifts. Indeed Wally Seccombe (Seccombe *et al.*, 1993) has argued that separate decision-making *per se* does not necessarily indicate unequal control over household resources. The division of labour argument is most relevant to labour intensive decisions, for example, deciding how much to spend on food. It

is less persuasive for orchestration decisions, as the labour involved is small relative to the potential benefits of exerting influence on the final decision, hence efficient division of labour considerations are likely to have less influence on the choice of decision-making.

The WAS collected detailed information on household decision-making. In the study respondents were asked "Who has the most say about how much is spent on each of the following items in this household?" Acceptable responses were (1) respondent, (2) spouse-partner, (3) respondent and spouse-partner equally and (4) other.

Figure 1 shows the results of the "who has most say" questions graphically. The horizontal axis measures the degree of female influence. The vertical axis measures the degree of inequality in decision-making. The female influence measures and equality of decision-making measures are calculated from the same "who has most say" questions. The data points are the sample mean of responses on each questionnaire item. The difference between the female influence scores and the equality of decision-making scores arises from the ways in which the responses were coded. In calculating the female influence scores, the response "[female] has most say" was coded as 1, "[male] has the most say" was coded as 0, and "respondent/spouse have equal say" was coded as 0.5. Food has the highest female influence score because, in the majority of WAS households, women had the most say about how much is spent on food. In calculating the not equal decision making score, if *either* the man or the woman had the most say the response was coded as 1, both partners having equal say was coded as 0. Trips has the lowest "not equal decision-making" score, indicating that in most households couples decide together how much to spend on trips.

Figure 1 reveals that there is a partial division of decision-making labour. Deciding how much to spend on food, household supplies, gifts and clothing are female decisions, while deciding how much to spend on insurance is a male decision. There are also a number of decisions, from spending on trips to spending on utilities, on which men and women have approximately equal influence. Yet within this group of equal influence decisions there are decisions that tend to be made by "respondent and spouse equally" such as trips, and others that are more likely to be made by males in certain households and females in others, such as utilities. While these results are based on a small Canadian sample, they are similar to those found in the consumer research literature generally (for example, Davis and Rigaux, 1974).

It is not so much a division of labour that indicates within the household but the exclusion of one partner from orchestration decisions. The crucial issue, however, is which of the decisions identified in Figure 1 are orchestration decisions.[9] A strong case can be made that decisions about food, household supplies and gifts are not orchestration decisions. These purchases require time consuming shopping. Even though food purchases may involve a fairly large amount

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[9]Judy Alexander told me a joke that illustrates the point nicely:
Interviewer: "Who makes the decisions in this household?"
Husband: "I make the important decisions, she makes the rest."
Interviewer: "What are the important decisions, then?
Husband: "What to do about Bosnia, the state of European union, the future of the United Nations, that sort of thing. She decides the little things."
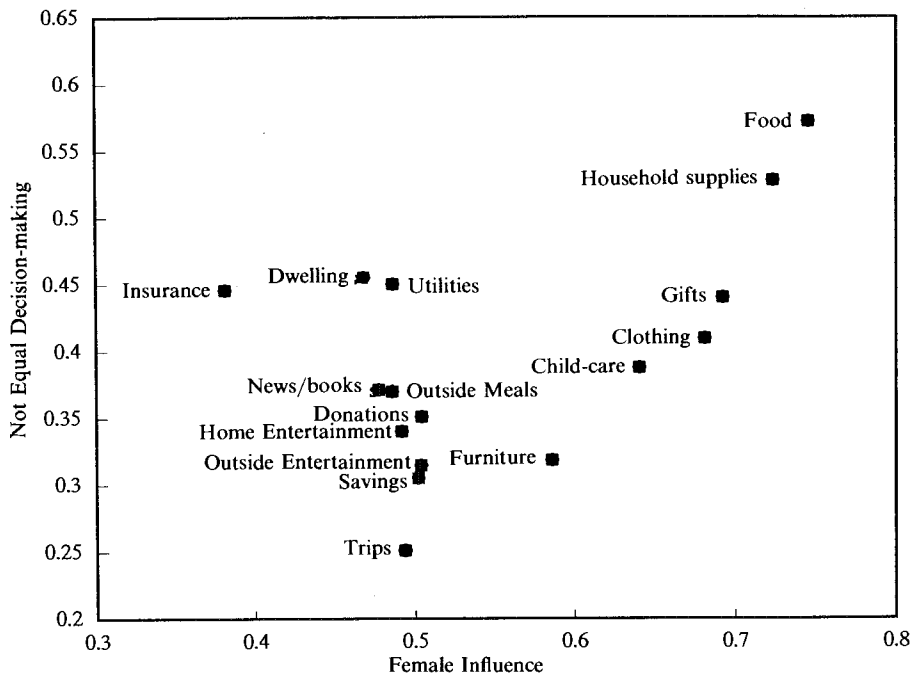
Figure 1. Who Has the Most Say About How Much is Spent

of money, the room for exercising discretion in the overall amount of spending on food is small given constraints imposed by time available for food preparation, the family's tastes, and their nutritional needs. Yet excluding food, household supplies, and gifts would pre-establish the conclusions of our study, by markedly reducing the extent of female influence. Moreover, there is something sexist about labelling decisions made by women as mere chores.

For the purposes of illustrating how decision-making data can be used to adjust income data to reflect control in decisions, we constructed a comprehensive measure of female influence, calculated by averaging the female influence score across all decisions for each household. The advantage of including all decisions is that we do not have to decide which decisions are "important." One disadvantage is that it reflects the survey design. For example, if the WAS included questions on car repairs and gardening tools, male influence scores would be likely to rise (Davis and Rigaux, 1974). A second disadvantage is that it weighs equally decisions which are minor in terms of household budget share (newspapers) with those that are major (child-care).

The mean female influence score across the entire sample is 0.5537. A person's effective or influence weighted share of household income can be calculated by multiplying total household income by that person's influence on decisions. For example, in a household with an income of $10,000 and a female influence score of 0.51, the female's influence weighted income share would be $5,100, and the male's would be $4,900. Measure 4 in Table 1 presents revised inequality indices, calculated using influence weighted household incomes.

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The amount of inequality in influence-weighted incomes (Measure 4) is less than inequality as inferred from Measure 2 or Measure 3, but is still greater than the amount of inequality in household incomes. That there is still inequality within the household can be seen by examining the Haddad–Kanbur index, which has a value of 0.191. The inequality, however, favours women. Average influence weighted female incomes are 23 percent greater than average influence weighted male incomes.

Measure 4 is one of the most problematic measures discussed in this paper. Three problems—that it does not distinguish orchestration and implementation decisions; that it is derived from a survey weighted towards traditionally female decisions; that it reflects a division of labour in which women undertake the chore of shopping; and that it fails to take into account constraints the decision-maker faces—have already been discussed. Another reason to be cautious about the data is that men and women have quite different perceptions of influence in decision-making. To take the two most extreme cases, average female influence on outside entertainment as reported by male respondents was 0.47 while for female respondents it was 0.55. For furniture and applicances, however, men's responses produced an average female influence score of 0.64 while women's produced one of 0.53. Finally, a question such as "who has the most say on how much is spent" does not capture the fact that decision-making takes place in a number of stages, from problem recognition ("I need new shoes") and search for alternatives ("Can we repair your old ones?") through to evaluation of alternatives, purchase decisions, and post-purchase satisfaction. The relative influence of the spouse varies from stage to stage, although there is little evidence of systematic difference in male and female influence at each stage (Davis and Rigaux, 1974).

More research in this area is needed, first, to identify who makes orchestration decisions and, second, to find ways of weighting decisions by their importance in terms of household expenditure, to see how decision-making influence translates into influence over dollars.

Measure 5: Perceived Inequality

Perceptions shape public policy and research agendas. One reason why intra-household inequality has taken so long to enter the policy arena and the economic literature in industrialized nations may be that many people regard income sharing as an essential part of family life.

The WAS asked respondents two questions which measure perceptions of income sharing. All respondents who reported having some individual income were asked: "How do you feel about your individual income: Do you think of it as your *own* income or as a *family* income?" 91 percent of respondents stated that their income was family income, with no significant difference between male and female respondents ($p = 0.81$). Respondents who were not the main income earner were asked the same question with respect to the main earner's income. There was a significant difference in male and female responses to this question, with 3 percent of the female respondents but 17 percent of the males replying that the main earner's income was his or her own ($p = 0.01$), perhaps reflecting certain male respondents' beliefs that they have no right to support from their wives.

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We used the responses to these questions to arrive at an approximate measure of the amount of inequality respondents perceive. When respondents indicated that income was "family income" we divided the income equally between the partners. Otherwise we attributed the income to the income earner.[10] Adjusting in this way for sharing within households results in a decrease in the aggregate amount of inequality close to the conventional level, as can be seen by comparing Measure 5 and Measure 1–ehi in Table 1. The Haddad–Kanbur inequality measure produces a mean level of intra-household inequality of 0.04, with 96 percent of households reporting no inequality.

The problem with our particular perceived inequality measure, however, is that it is based on a false dichotomy. Most people use a large part of their income for goods which benefit their entire family, such as paying the rent or buying a rose bush for the garden. Since respondents spend part or most of their income on family public goods, they are justified in considering it family income. Yet this does not deny the existence of inequality in consumption of goods that are not public. Moreover, a high income earner may enjoy a greater influence on "family" decisions such as where to go on vacation. Income is neither "own" nor "family," but somewhere in between.

A second reason to be cautious about perceived inequality is that researchers in psychology have found that partners feel distressed by inequality in relationships. If actual inequities exist, partners restore psychological equity by distorting their perceptions of inputs and outputs (Antonides and Hagenaars, 1992). On the other hand, research has found that both men and women report doing more housework than their partners say they do (Marshall, 1993). This confirms the idea that people distort their perceptions, but goes against the idea that the distortions always tend to increase feelings of equity. It is hard to interpret perceived inequality without evidence on how the other spouse perceives inequality, and the mutual consistency of these perceptions.

CONCLUSIONS

Inequality within households matters. Accounting for intra-household inequality provides a more accurate and more comprehensive measure of overall economic inequality. Moreover, policy issues from the choice of tax unit to the targeting of benefits turn on how resources are distributed within households.

Policy-makers must make hard choices. The standard approaches to measuring inequality (Measures 1–h and 1–ehi) have compelling advantages. They are easy to calculate and require only information on total household income and household size, data that are readily available in most countries. Moreover, they produce results that correspond closely to people's perceptions of household sharing (Measure 5).

Yet the standard approach solves the problem of measuring resource distribution within households by ignoring it. Allowing for inequality in the control of household resources (Measure 3) produces a Gini coefficient that is 27 percent

[10]Main earner's income was calculated as household income less respondent income for respondents who were not the main earner.

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higher than that calculated on the basis of household income alone (Measure 1-h), while the Atkinson index ($\varepsilon = 0.5$) is 80 percent higher. Taking account of unequal influence over decision-making (Measure 4) produces a Gini coefficient 16 percent higher and an Atkinson index 41 percent higher than the standard approach. The new inequality measures employed in this study all lead to the conclusion that the standard approach understates actual inequality in households.

A second hypothesis, that inequality in the household favours men, is not unanimously supported. Actual earnings, control over household finances and perceived inequality all produce average male incomes higher than average female incomes. However incomes adjusted for influence on decision-making (Measure 4) are higher on average for women than for men. It is worth emphasizing this conclusion, because it demonstrates that inequality has many dimensions, from earnings and representation in positions of power and influence to longevity and access to leisure time. The division of labour by gender that produces female earnings that are 54 percent of male earnings also puts women in the position of making many of the household's purchasing decisions. It is not easy to condense many dimensions of difference to one measure of inequality. Yet the solution is not to give up on the measurement of inequality, nor to draw the facile conclusion that inequality in one dimension always compensates for inequality in another.

What is needed is more careful measurement of previously neglected dimensions of inequality. Measurement of control over family finances is one promising research direction. However an accurate measure of control will require more quantitative information, and more information about access and accountability. Influence on decision-making is also an interesting direction for future research. Priorities here are, first, separating orchestration and implementation decisions and, second, using expenditure data to weight decisions.

Computing measures that recognize intra-household inequality takes more time, more data and, therefore, more money than the standard household-based approach. Yet it is worthwhile. Families and households matter too much to ignore what happens inside them.

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