A guide to measuring microenterprise profits and net worth

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Based on a review of previous studies and data from 448 microenterprises in Zimbabwe, this paper examines five alternative measures of profits and five alternative measures of net worth. The results show that the single-question proxies are too difficult for proprietors to answer, whereas the most complex profit measures generate many negative estimates. The best measure of profits, based on three questions, could be answered by all proprietors and it avoids recall problems associated with sales and expenses. Among the net worth proxies, all of the measures are positively correlated. Nonetheless, the proxy based on fixed assets, accounts receivable, debt and inventory, showed the highest correlation with the full measure of net worth.

Information on enterprise profits and net worth can help us assess the impact of interventions

INFORMATION ON ENTERPRISE PROFITS and net worth can be critical to assessing the impact of microenterprise services. Because full measures of profits and net worth can be difficult and expensive to collect, there is a tendency to look for alternative variables, such as changes in sales revenue or changes in the value of fixed assets, to assess the impact of microenterprise support programmes. While these alternative measures offer some indication of the changes in an enterprise's status, profits and net worth are considered to be much better indicators of enterprise growth and stability.

This paper will define profits and net worth and describe the measurement problems associated with each. Alternative measures of profits and net worth will then be examined, based on a review of previous studies and survey data from Zimbabwe. Using information from previous studies, a questionnaire was designed to include five alternative measures of enterprise profits and five alternative measures of net worth (a copy of the questionnaire is in Daniels 1999b, and survey questions related to the best profit and net proxies are given in Boxes 1 and 2). The questionnaire was then administered to a random sample of 448 microenterprises in Zimbabwe. The proxies ranged from single-question estimates to full measures for each variable, including up to 209 and 59 subquestions for profits and net worth, respectively. (A subquestion refers to a single line in the questionnaire within a broader question e.g. within the broader question ‘cost of inputs' are 21 subquestions for each individual input. Not all enterprises had 21 inputs, so the subquestions refer to the maximum number of questions that would have to be answered.)

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The proxies were judged according to their accuracy and cost

Two criteria were used to judge the proxies: accuracy and cost. Accuracy was measured by several methods:

- the percentage of cases that could be estimated by proprietors;
- the ease with which they answered the questions for each proxy;
- the percentage of cases with positive profits;
- the level of variation within each proxy compared to other proxies;
- the correlation of each proxy with the other measures.

Cost was measured by the time needed to calculate each proxy. Obviously, there may be trade-offs between these two criteria since a higher level of accuracy may require a greater number of questions.

Defining and measuring profits and net worth

Profits are typically defined as total revenues minus total costs, where revenue is simply the price of the product multiplied by the number of units sold. Within the microenterprise sector, costs typically include items such as raw materials, electricity and wages paid to employees.

Net worth is defined as enterprise assets minus enterprise liabilities at a point in time. Assets include the inventory of finished products, raw materials, cash, bank accounts, accounts receivable, buildings, machinery, tools and any means of transportation. Liabilities refer to outstanding loans or debt.

As mentioned earlier, profits and net worth are typically omitted from microenterprise studies due to numerous measurement difficulties. One of the most difficult problems is that most microenterprises do not keep written records. Information on profits and net worth must, therefore, be derived from memory, which can be very inaccurate. Liedholm (1991) tested the accuracy of information in Honduras, where proprietors were visited twice a week for one year to collect data on profits. At the end of the survey, they were asked to provide their best estimate of sales, costs and profits from the same one-year period. Profits were overestimated by 47 per cent and only 21 per cent of respondents' estimates were within 25 per cent of the derived profit figures.

Respondents cannot usually remember information on annual business profits accurately

Fungibility is also a significant problem, since many microenterprise activities are fully integrated into household activities. For example, revenue from the enterprise may not be kept separate from other sources of household income. Similarly, some of the business assets may be shared by the household. When profits are measured for the last week or month only, this assumes that profits are stable throughout the year, whereas they may fluctuate dramatically, depending on the season or other factors that affect income such as family problems or macro-economic factors. Finally, information on profits and net worth is very sensitive. Proprietors who want to avoid taxation may under-report their earnings or refuse to co-operate.

Review of past measures of profit and net worth

Within the microenterprise literature, 14 methods were identified to define and estimate profits (see Table 1, and for a full review of the studies listed in Table 1, see Daniels, 1999a).

Considering the individual components of profits, the simplest method to estimate sales was to ask the proprietor about sales last month.

Table 1. Measures of profit from previous studies

Authors	*Country*	*Sample size*	*Calculation of profits*
Liedholm and Chuta (1976)	Sierra Leone	270	Value added - capital services - non-family labour - family labour.
Daniels et al. (1995)	Kenya	2259	Sales - operating costs - depreciation.
Little et al. (1987)	India	274	[(Gross value added - wage bill)] / capital.
Haggblade (1992)	Bangladesh	**	(No. of paid workers)(avg. wage) + 2 (avg.wage) (proprietor's labour).
Vijverberg (1991)	LSMS studies	Varied	Total revenue - total expenditures.
			Value of products consumed by household + money from enterprise used by household + money left over from enterprise.
			Income earned by all family members working in the business.
MkNelly and Lippold (1998)	Mali	94	Total revenues - explicit costs.
McPherson (1998) and Daniels (1994)	Zimbabwe	5356 and 6620	Annual sales - {[(costs last week) / (sales last week)] * (annual sales)}
Minot (1996)	Laos	778	Sales revenue - input costs - electrical costs – depreciation.
			Wage payments / No. of workers.
Barnes and Keogh (1999)	Zimbabwe	691	Profits for last month estimated by proprietor in single question.
Copestake et al. (1998)	Zambia	420	Total sales last month - total operating costs last month.
Benfica (1998) and MOA/MSU Research Team (1997)	Mozam-bique	948	Sales last month - expenditures last month.
Parker (1996)	Zambia	5053	Owner's earnings + money remaining for reinvestment.

The slightly more complex methods ask for sales estimates in high, low and average months and the number of months falling into each category.

Most studies estimated labour costs by asking for the amount paid out in wages in the month prior to the survey. In the most complex method, each worker was listed along with his or her hours worked, activity and wages in cash and in-kind. The most common method to estimate other operating costs was to provide a list of expenses and ask the proprietor how much he or she paid last month or during some other specified time period. Two studies also developed a section for traders that examined costs to restock a business based on the top revenue-generating products.

There were several methods for measuring and depreciating fixed assets. In some cases, a list of assets was read to the proprietor and he or she was asked for the value if the item were to be sold today. In other cases, data were collected on the year of purchase and the original price, which was then adjusted for inflation.

There were no studies identified in the microenterprise literature that attempted to measure the full value of net worth, though some studies did

None of the studies attempted to measure the full value of net worth

measure individual components of it. Beginning with cash, one study asked for the cash available today, whereas another study asked for the current value of savings in a list of different types of account. Debts were calculated by asking for the proprietor's estimate of the total amount and also for a list of possible sources of debt. Similarly, fixed assets were calculated either by the proprietor's estimate of the total value or through a list of possible assets.

Survey method

For this study, a microenterprise was defined as any income-generating activity with three or fewer workers selling 50 per cent or more of its product. A total of 448 questionnaires were administered in Zimbabwe in August and September 1999 (Daniels, 1999b). These enterprises were selected from a subsample of enumeration areas used in three previous national surveys. In 1991, 1993 and 1998 the United States Agency for International Development (USAID) funded nationwide surveys of microenterprises in Zimbabwe (McPherson, 1991; Daniels, 1994; McPherson, 1998). Each time, the surveys used a stratified, one-stage cluster sampling technique. This was done by dividing the country into eight strata based on population density and commercial activities. A random sample of enumeration areas within the strata was then selected. Using this same technique, all households, plus all mobile businesses and businesses located outside households in the subsample of enumeration areas, were approached for this study.

The five profit proxies tested

Proprietors were allowed to specify whatever time period was easiest to recall

As described earlier, information was collected to estimate five profit proxies and five net worth proxies as defined below. Although the results for the proxies are expressed in monthly or annual figures, proprietors were allowed to specify whatever time period was easiest to recall. During the analysis stage, the responses were then recalculated into monthly or annual figures based on the operating time for each business.

Profit proxy 1: Profits in last month as estimated by the proprietor in a single question. Proprietors were asked to estimate their profits over the past week or month. They were reminded to consider all costs such as transport, inputs, supplies and paid labour.

Profit proxy 2: Value of product consumed plus money from the enterprise used by the household plus any money left over. The second proxy, using three questions, was based on a measure used by the World Bank as part of the Living Standards Measurement Studies (LSMS) (see Vijverberg and Mead, forthcoming). The first question asked proprietors to estimate the value of the product normally consumed by the household, then they were asked how much money from the business they normally use for themselves or their household. Finally, they were asked to estimate the amount of money that they had left over after consuming some of the product and using some of the money from the business.

Profit proxy 3: Sales revenue minus operating costs in the last month. The third proxy was based on five questions with a maximum of 28 sub-questions. Profits were estimated as sales revenue minus operating costs in the last month. Information on sales revenue was collected in a single question. Operating costs were based on a list of costs and the amount spent on each per week or month.

Table 2. Implementation of profit proxies

	Profit proxy 1	*Profit proxy 2*	*Profit proxy 3*	*Profit proxy 4*	*Full measure*
Number of questions including maximum subquestions	1	3	28	138	209
Average time to collect proxy per interview (minutes)	0.9	1.8	7.5	13.7	15.2
% of cases that could not be estimated due to missing information	32%	0%	14%	11%	17%
% of cases with negative estimates (among those that answered)	0%	0%	37%	55%	52%
Average level of difficulty (0=none, 3=extreme)	1.3	0.73	0.44	0.50	0.56

Profit proxy 4: Sales revenue minus operating costs minus depreciation in the last year. The fourth profit proxy was estimated as sales revenue minus operating costs and depreciation. It was based on a total of seven questions with a maximum of 138 subquestions. Information on sales revenue was based on the average amount earned in high, low and medium months. Information on operating costs was collected through the same list of expenses described above for the third profit proxy. In addition, a ratio of variable costs to sales revenue was estimated for the past month and then applied to high, low and average sales months to determine the costs per month throughout the year. Depreciation of fixed assets was also incorporated by subtracting 20 per cent of the current value of equipment and 5 per cent of the current value of buildings, provided the business was not run from home. Finally, a separate section was used for traders to estimate the costs to restock their businesses.

Full measure of profits: Proxy 4 plus output consumed by the household or given away and refinements in depreciation, labour use and asset sharing. The full measure of profits was based on nine questions with a maximum of 209 subquestions. In addition to all of the information used in the fourth profit proxy, the full measure included information about output consumed or given away by the household and detailed information on individual workers employed by the microenterprise over the past year. For depreciation, the full measure first estimated the proportion of each asset used by the business and then depreciated that portion based on the number of years left of use as estimated by the proprietor.

Results for the profit proxies

As illustrated in Table 2, the time to administer each proxy ranged from less than one minute to 15 minutes for the full measure. The second line in Table 2 shows that the two simplest measures of profits did not yield any cases with negative profits. As the proxies became more complex, however, the percentage of negative cases ranged from 37 to 55 per cent. While some firms may operate with negative profits in the short run, one-third to one-half of all firms operating with negative profits seems unrealistic. A closer examination of the negative estimates revealed that most of the negative estimates arose from cases where input costs were

All firms operating with positive profits, as indicated by the first two proxies, seems unrealistic

greater than sales. All firms operating with positive profits, as indicated by the first two proxies, seems unrealistic too. Particularly in the case of the second proxy, the flows described by the respondent are assumed to be sustainable over time. If, however, the family continues to consume a large portion of the business goods or proceeds without reinvesting in the enterprise, it is likely to fold. It is necessary, therefore, to consider the longevity of the enterprise when using the second profit proxy.

It may seem plausible that respondents had become weary by the time they reached the fifth proxy, and this accounts for the inaccuracy of these more complex measures. However, the questionnaire was not set up to ask the questions related to the first proxy followed by the second, third, etc: if there were any overlapping questions between two proxies, the questions were only asked once. The questionnaire was also designed to begin with the less detailed questions followed by the very detailed questions, so that the less detailed questions would not be biased by having a proprietor think through each cost or sale before answering them.

Although the first proxy was the simplest in terms of the number of questions, it had the highest proportion of cases (almost one-third) that could not be estimated (Table 2). By comparison, all proprietors could answer the questions related to the second proxy. Among the two most complex proxies and the full measure of profits, 11 to 17 per cent could not be estimated. The last row in Table 2 shows the average level of difficulty to estimate the proxies. These estimates were based on an end-of-survey questionnaire administered to the enumerators. They were asked to rate each question on the questionnaire according to a scale of difficulty of 1 to 3, and these ratings were combined to give an average level of difficulty for each proxy.

Information on the sensitivity of the questions in each proxy was collected separately through written comments by the enumerators. All of the enumerators reported that the questions concerning cash or profits were sensitive, and 7 out of 10 enumerators mentioned the questions related to wages paid to employees.

Table 3 illustrates the mean, median, standard deviation and coefficient of variation for the proxies and full measure of profit. The coefficient of variation, which provides a gauge of the variability of each proxy in percentage terms, is measured as the standard deviation divided by the absolute value of the mean and multiplied by 100.

The first two proxies had remarkably similar characteristics

The first two proxies have remarkably similar characteristics and the lowest coefficients of variation among the five measures. The third proxy, based on sales last month, has the greatest coefficient of variation. Although it is impossible to determine which level of variation among the proxies is the most likely, the large level of variation for the third proxy compared to the others suggests that this proxy may not be as accurate.

Table 3. Descriptive statistics for profit proxies

	Mean (Z$)	*Median (Z$)*	*Standard deviation (Z$)*	*Coefficient of variation*
Profit proxy 1	2 128	1 000	3 169	149%
Profit proxy 2	2 902	1 591	4 132	142%
Profit proxy 3	717	290	8 925	1245%
Profit proxy 4	-1 429	-69	7 449	521%
Full measure	-6 120	-700	18 483	302%

The Pearson correlation coefficients for all the measures of profit are provided in Table 4. (The coefficients can be interpreted as the strength of the linear association between two variables, with the extreme values of +1 or -1 indicating a perfect negative or positive correlation between two proxies, respectively.) Examining the individual pairs of relationships, the first proxy is positively correlated with the second and third proxies. It is negatively correlated, however, with the fourth and full measures of profits. Similarly, the second proxy is negatively correlated with the fourth and full measure of profits. This indicates that the first three proxies may be substituted for one another. The fourth and full measures are strongly correlated, which is not surprising since the calculation of the two measures is very similar.

Overall, the results for the profit proxies indicate that the first and second proxies appear to be better estimates of profits than the more complex measures. In terms of cost, the simpler proxies are quicker to implement. In terms of accuracy, the first two proxies did not exhibit the large number of negative cases found among the more complex proxies. Finally, the two simplest measures were positively correlated. Although both of the simplest proxies appear to be less costly and more accurate than the most complex measures, the second proxy appears to be the best measure of profits (see Box 1, which gives the questions leading to proxy 2). All proprietors answered the questions for the second proxy compared to only two-thirds for the first proxy. Also, most enumerators indicated that the first proxy was one of the most sensitive questions on the questionnaire.

The simplest measures appeared to be less costly and more accurate than the most complex measures

The five net worth proxies tested

Net worth was also estimated using five proxies with increasing levels of complexity. The second and third net worth proxies attempt to measure only some portion of net worth. For these proxies, the correlation with the full measure becomes a more important measure of accuracy than a comparison of the means or medians.

Net worth proxy 1: Proprietor's estimate of net worth based on a single question. The question asked about the net worth of the business on the day of the interview. Proprietors were reminded to consider the value of all inputs, materials, finished goods, cash and savings for the business as well as any debts and fixed assets.

Net worth proxy 2: Current value of fixed assets. A list of 20 fixed assets was read to the proprietor, who was asked to estimate the value of each item if it were to be sold that day.

Net worth proxy 3: Current value of fixed assets plus inventory, accounts receivable and outstanding debt. The third proxy involved a

Table 4. Pearson correlation coefficients for profit proxies

	Proxy 1	*Proxy 2*	*Proxy 3*	*Proxy 4*	*Full measure*
Proxy 1		0.410*	0.243*	-0.314*	-0.294*
Proxy 2	0.410*		-0.052	-0.234*	-0.258*
Proxy 3	0.243*	-0.052		0.554*	0.306*
Proxy 4	-0.314*	-0.234*	0.554*		0.644*
Full measure	-0.294*	-0.258*	0.306*	0.644*	

* significant at the 0.10 level

Box 1. Questions used in Profit Proxy 2

A1	Does your household consume or use any of this business' products or services? If yes, what is the value of the products normally consumed or used by your household? (Put a zero if nothing has been consumed or used by the household.)	_____
A2	Time period (1)daily (2)weekly (3)monthly (4)quarterly (5)semi-annually (6)yearly *(If A1 is zero, put a dash in A2.)*	_____
B1	Do you use part of the money you get from this business for yourself or for your household? If yes, how much money from the business do you *normally* use for yourself or your household? *(Put a zero if no money has been used.)*	_____
B2	Time period (1)daily (2)weekly (3)monthly (4)quarterly (5)semi-annually (6)yearly *(If B1 is zero, put a dash in B2.)*	_____
C1	After making purchases for the business and after using some money for yourself or your household, is there *usually* any money left? If yes, how much money do you *usually* have left after purchases for the business and using some of the money for yourself or your household? *(Put a zero if no money is left.)*	_____
C2	Time period (1)daily (2)weekly (3)monthly (4)quarterly (5)semi-annually (6)yearly *(If C1 is zero, put a dash in C2.)*	_____

total of 32 subquestions. The value of current inventory was estimated as the total value of raw materials and of finished products. Accounts receivable were estimated as the total amount owed on the day of the interview by customers, traders and family members or friends. Similarly, outstanding debt was estimated by reading a list of possible sources of debt to the proprietor and asking for the amount still owed to each source on the day of the interview.

Net worth proxy 4: Proxy 3 plus cash of business (opportunity to invest). The fourth proxy included all of the components of the third proxy, plus the cash available to the business on the day of the interview. This was done by asking how much the proprietor could spend from the business cash and savings if she or he had an excellent opportunity for a business investment on the day of the interview.

Full measure of net worth: Current value of fixed assets (portion used by business) plus detailed inventory value, accounts receivable, outstanding debt and cash-in-hand of business. The full measure was based on a total of 59 subquestions and included all of the components of the fourth proxy with slightly greater detail. The value of inventory was calculated by asking for the quantity of every item in stock and the value of the item if it were to be sold on the day of the interview. The value of fixed assets was calculated as for the second proxy. Proprietors were also asked, however, if the asset was shared by another business or the household and the proportion of the time that the asset was actually used by the business. Finally, proprietors were asked for the amount of cash-in-hand on the day of the interview instead of asking about the cash available for an investment opportunity.

Only the proportion of the asset used by the business was incorporated into the value of net worth

Table 5. Implementation of net worth proxies

	NW proxy 1	*NW proxy 2*	*NW proxy 3*	*NW proxy 4*	*NW full measure*
Number of questions including subquestions	1	20	32	33	59
Average time to collect proxy per interview (minutes)	0.9	2.6	7.0	7.6	7.6
% of cases that could not be estimated	36%	0%	0%	4%	13%
% of cases with negative estimates (among those that answered)	0%	0%	4.5%	2.3%	1.8%
Average level of difficulty (0=none, 3=extreme)	1.3	0.70	0.44	0.59	0.51

Results for the net worth proxies

Proprietors found the first net worth proxy, based on a single question, most difficult to answer

As illustrated in Table 5, questions for the simplest net worth proxies were completed in less than three minutes, whereas the most complex proxies required an average of seven to eight minutes per interview. Although the first proxy was the simplest in terms of the number of questions, over one-third of all proprietors could not estimate their net worth. In contrast, all proprietors answered the questions related to the second and third proxies. For the fourth proxy and the full measure of net worth, 4 per cent and 13 per cent could not be estimated, respectively.

The percentage of cases with negative estimates of net worth was quite low for the two most complex proxies and the full measure of net worth. It is reasonable to expect some businesses to have a negative net worth since they may have considerable debt. All of the cases had positive estimates for the first two net worth proxies.

Table 5 also shows the level of difficulty in estimating each proxy. Considering the average difficulty and the modal responses for each question, the results indicate that the first proxy is the least accurate in terms of the ability of the proprietor to answer the question. The full measure had one question that was extremely difficult for the proprietors. The majority of the questions for the full measure and the second, third and fourth proxies, however, could be answered without much difficulty.

Enumerators were asked to comment on the sensitivity of each question. In general, there were many more questions on net worth proxies that were considered sensitive compared to the profit proxies. In particular, enumerators identified the questions related to the detailed inventory,

Table 6. Descriptive statistics for net worth proxies

	Mean (Z$)	*Median (Z$)*	*Standard deviation (Z$)*	*Coefficient of variation*
Net worth proxy 1	13 746	3 000	30 813	224%
Net worth proxy 2	3 796	150	13 925	367%
Net worth proxy 3	10 937	1 728	27 136	248%
Net worth proxy 4	23 251	5 365	58 880	253%
Full measure	414 689	20 525	1 283 194	309%

Table 7. Pearson correlation coefficients for net worth proxies

	Proxy 1	*Proxy 2*	*Proxy 3*	*Proxy 4*	*Full measure*
Proxy 1		0.527*	0.739*	0.581*	0.526*
Proxy 2	0.527*		0.629*	0.377*	0.880*
Proxy 3	0.739*	0.629*		0.624*	0.678*
Proxy 4	0.581*	0.377*	0.624*		0.417*
Full measure	0.526*	0.880*	0.678*	0.417*	

*Significant at the 0.10 level

outstanding debts and savings as sensitive, and the question related to cash-in-hand appeared to be the most sensitive.

Table 6 provides the means, medians, standard deviations and coefficients of variation for the proxies and the full measure of net worth. Unlike the profit proxies, which exhibited coefficients of variation ranging from 124 to 1226 per cent, the coefficients of variation for the proxies of net worth are much smaller. Also, as described earlier, the second and third proxies attempt to measure only a portion of the full measure of net worth. It is no surprise, therefore, that their means are lower than the mean of the full measure. The Pearson correlation coefficients for the proxies and the full measure of net worth are given in Table 7. All pairs of proxies and the full measure are positively correlated, which suggests that all of the proxies work reasonably well. The highest degree of correlation is between the second proxy and the full measure.

Overall, the results for the net worth proxies indicate that the third proxy appears to be the best estimate (see Box 2 for the questions used for proxy three). First, it is less sensitive than the most complex measures because it avoids asking about the cash of the business. Enumerators indicated that only two questions were difficult to answer. In terms of the statistical analyses, the third proxy had the second highest correlation with the full measure of net worth. It should be borne in mind, however, that the third proxy is only a partial measure of net worth, understating the true value, since it omits the value of the cash-in-hand of the business.

The third proxy is only a partial measure of net worth

Relationship between profits and net worth

Although net worth is measured at one point in time (i.e. net worth at the time of the interview) and profits are measured over some previous time period (e.g. last month or last year) there could be some correlation between the two measures. For example, a firm that earns high profits may reinvest that profit into the business and thus exhibit higher net worth, although this may not always happen. This section examines the correlation between the two sets of proxies (see Table 8). The first and second profit proxies are positively correlated with all of the net worth measures, though the correlation is very weak in some cases. The third profit proxy exhibits more irregular results: the correlation is only statistically significant for the first, third, and full measure of net worth and the correlation in these cases is weak. The two most complex measures of profit are negatively correlated with the net worth measures. Because all of the net worth proxies produced more consistently accurate estimates, these results strengthen the conclusion that the two simplest measures of profit are more accurate than the most complex measures of profit.

Box 2. Questions used in Net Worth Proxy 3

A1. Please tell me about the machinery, equipment, hand tools, buildings, and land that are owned and used in this enterprise (*read the entire list to the proprietor and ask for information about each). (If you need more space, write on back of form and indicate this to supervisor.) (Put a dash if NA.)*

Item	*(1) Time owned (a) years (b) months*	*(3) Years left of use*	*(4) Original purchase price*	*(5) Price if sold today*	*(6) If shared with other business/household, what is % time used by this business?*
A Tools					
B Tools					
C Tools					
D Tools					
E Furniture or furnishings					
F Furniture or furnishings					
G Vehicles					
H Machinery or equipment					
I Machinery or equipment					
J Buildings (excluding value of house)					
K Buildings					
L Land (only if owned & used by business only)					
M Other					
N Other					
O Other					

B1. What is the total value of your raw materials/supplies if you sold them today (now)? (Remind the proprietor about the definition of a raw material.) (Record dash for traders.) _____

B2. What is the total value of your finished products if you sold them today (now)? _____

C1. In total, how much do your customers owe you as of today? (Put zero if nothing is owed.) _____

C2. How much do other traders owe you as of today? (Put zero if nothing is owed.) _____

C3. Do other family members/friends owe you money that they borrowed from the business? If yes, how much do they still owe you as of today? (Put zero if nothing is owed.) _____

C4. If you have received credit for this business from any of the following sources, how much do you still owe today including interest? (Put a dash if the proprietor does not have these types of credit.)

Credit source	*Amount still owed*
A Family/friends	
B Moneylender (informal)	
C Formal credit institution	
D Microloan programme (Zambuko, SEDCO, OMA, etc)	
E Savings clubs	
F Suppliers	
G Other	

Table 8. Pearson correlation coefficients between the profit and net worth proxies

	Net worth proxy 1	*Net worth proxy 2*	*Net worth proxy 3*	*Net worth proxy 4*	*Full measure of net worth*
Profit proxy 1	0.517*	0.268*	0.450*	0.396*	0.305*
Profit proxy 2	0.250*	0.206*	0.273*	0.232*	0.266*
Profit proxy 3	0.140*	0.084	0.041*	0.034	-0.076
Profit proxy 4	-0.290*	-0.219*	-0.307*	-0.247*	-0.269*
Full measure of profits	-0.380*	-0.530*	-0.476*	-0.324*	-0.624*

*Significant at the 0.10 level

Conclusions

Simple impact measures proved as good as complex measures

Profits and net worth are clearly difficult to measure. More detailed estimates of profits and net worth are not necessarily more accurate, and at the opposite extreme, single-question estimates are too difficult for proprietors to answer. Based on the five profit proxies used in this paper, the results show that the second proxy appears to be the best measure of profits. All proprietors could answer the three questions related to this proxy. Furthermore, this proxy is positively correlated with the net worth measures, which appear to be more accurate. In addition, this proxy avoids estimation of sales, fixed assets and operating costs plus all of the recall problems associated with these components of profits.

In the case of the net worth proxies, all five measures are positively correlated with each other and appear to provide reliable results. Nonetheless, the third proxy showed the highest correlation with the full measure. In addition, this proxy is relatively quick to implement and it avoids the sensitive questions related to the cash of the business.

The results for both the profits and net worth proxies have several implications for practitioners and policy makers. First, measuring profits and net worth does not require lengthy questionnaires with high costs of implementation. Instead simpler measures can be used. The best profit proxy required only three questions and could be administered in less then two minutes. The best net worth proxy included a maximum of 32 questions and was administered in seven minutes on average.

Practitioners who want to measure the impact of their assistance on microenterprises can use these measures before and after assistance to determine if there is an improvement in profits or net worth. Second, government and donor policies towards microenterprises may be guided by information on profits and net worth. For example, the types of assistance provided to enterprises may vary depending on the potential of the enterprise to grow. Finally, information on profits can be used to assess the contribution of microenterprises to the national economy. For example, recent studies showed that the microenterprise sector contributed 12 to 14 per cent to GDP in Kenya and 6 to 9 per cent in Laos (Daniels and Mead, 1998; Minot, 1996). This information led to increased attention on the sector as a means of poverty alleviation and as a dynamic force in the economy.

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