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**The Irrational Choices made by Farmer's Wives: Working towards an
analysis of the farm family as an economic unit**

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Abstract

Rural areas remain characterised by the importance of small scale enterprise and self-employment. Farmers have faced pressure on income in the latter years and change management as a means of survival for many farming families has become axiomatic. Raynor (1999), surveying the economic contribution of women in agriculture, noted that up to a third of farmers' wives contribute vital additions to the household income through 'non-farm but on-farm' (NFOF) micro-enterprises or diversification. The debate surrounding the contribution of rural female self-employment or enterprise development, is all but non-existent. The case for a more systematic measure of the contribution that is being made through female led farm based enterprises is made in this paper. It applies the principles of Becker's (1993) analysis of capital assets within the family, to the family farm. It highlights, in the context of Becker, the seemingly irrational choices made by farm based female entrepreneurs and concludes that a more multidisciplinary approach needs to be developed to better understand the socio-economic contribution made by "farmer's wives" as part of the process towards sustainability for the family farm.

Introduction

Rural areas remain characterised by the importance of the very small scale enterprise and self-employment. Farms still remain an important, although diminishing part of them. Farmers have faced pressure on income and this, coupled with Common Agricultural Policy (CAP) developments over the last decade have resulted in 'change management' as a means of survival for many farming families. Diversification has become an axiomatic part of this survival, with 51% of all farms having diversified (DEFRA, 2009). Data from the Farm Business Survey (DEFRA, 2009) indicates that latterly, even farms categorised as 'large' have begun to diversify at a rapidly increasing rate, but in earlier stages it was those under 200ha. It would not be unreasonable to deduce from this that early farm diversification was driven by family owned farms rather than agri-businesses. Whilst research into aspects of diversification *per se* (CRR 2003; Ilbery, Maye and Watts, 2006; DEFRA 2009,) has been undertaken, the effects of these diversifications with respect to division of labour and changing roles within the farm family has not been researched in so much detail.

In the same way there has to date, been relatively little analysis of the contribution to the national economy made by female self employed or female led enterprises, a point clearly made by Carter (1993, p151) who noted that "historically women have been left off the small business research agenda or made invisible by research practices or in other ways written out of the analysis of self-employment." More recently work has been undertaken by Rosa et al (1996), Carter et al (2001), PROWESS (2005,) but the paucity of any volume of such work has, to date, left little room for much more than anecdotal supposition into the actual economic importance of that contribution. The debate surrounding the contribution of *rural* female self-employment or enterprise development, other than that made by Little et al (1991), Countryside Agency (2002) Gasson (1989, 1996), Warren-Smith (1999) and Warren-Smith and Jackson (2004), none of whom actually made any real comparative assessments, is all but non-existent. Yet recent statistics show that in rural areas (PROWESS, 2006) women have been highlighted as generating twice the rate of business start-ups to men against a national picture, in which only a third of women compared with the number of men are starting up in business.

Findings also substantiate the long held anecdotal belief that most on-farm diversifications are initiated by family members other than the farmer and that often it was the female partner. Research by Warren-Smith and Jackson (2004) showed that there was a growing contribution to the family farm income through female led 'non farm but on farm' (NFOF) diversifications. Table 1 shows that 29% of the farm based Female Rural Entrepreneurs (FREs) surveyed contributed over 75% to the overall total family farm income through these businesses. However, traditional business support for farms

through DEFRA still largely concentrates on production agriculture and related diversifications.

Table 1: Business Income and its Contribution to Farm Family Income

Non farm but on farm Business Income (£000)	% of women surveyed	Additional Farm Income Supplement (%)	% of women surveyed
<5	15	0 –25	44
5 – 24	56	26 –50	19
25 – 44	9	51 –75	8
>45	20	>75	29

(Source: Warren-Smith and Jackson 2004)

The question then, into the relative efficiencies and contributions of each member of the farm family household and the wider contribution that that each makes to the wider rural economy and rural development overall remains unanswered. This paper takes the principles of Becker's theorems developed from his analysis of family capital assets, using a rational choice approach. It then goes on to apply them to the contribution made by "farm wives" (or NFOF FREs) as researched in this study.

Rational Choice Approach

In his 'Treatise on the Family' Becker (1993) produced an economic analysis of capital assets within the family, which accounted for the recurring theme of the tension and required balance between household and enterprise. Building on this approach could well provide a better platform for analysis of the contribution that comes from the female rural entrepreneur (FRE), particularly the contribution of the farm-based FRE. His work used an economic or rational choice approach to the family and he used the word treatise in the title as, he noted, "the use of the term 'economic' was invariably understood to mean that the analysis would be confined to material aspects [of family life]" i.e. incomes and spending patterns. The rational choice approach assumes that "individuals maximise their utility from preferences that do not change rapidly over time and that the behaviour of different individuals is coordinated by explicit and implicit markets," Becker (1993, p.ix). Becker developed Jacob Mincer's (1962) argument that labour force participation of married women is determined not only by their earnings potential but also by the earnings of their husbands, the number of children they have and other family characteristics. His work on household division of labour, within the context of a partnership with siblings, is based on relative efficiencies of each member of the household. The biological absolute advantage that women have over men in the field of childbearing, for example, often leads to the subsequent comparative advantage in household labour specialisation with respect to child rearing. He holds that a woman's

human market capital will always be lower than that of men due to the investment into marketplace and human capital being superseded by these biological efficiencies. In a primary based economy (or relative to farm-based FREs, operating within a primary producing sector) or even in a secondary manufacturing based economy, this would be reflected in market wage levels. This following section is a summary of Becker's work that provides the basis for later observations regarding the relative efficiencies of FRE households in the context of running NFOF enterprises. His model looks at two types of investment (marketplace and household) into human capital and underlines the recurring tension between household and marketplace highlighted in this paper.

Becker's analysis of the household begins with a simple situation of a single-person household and is then further developed. In a single-person household, assuming consumption is stationary, the allocation of remaining time to maximise consumption between market and household sectors, where H^1 (raises market wages) and H^2 (raises the effective amount of household time) have chosen an optimal path in the allocation of time, would result in the yearly aggregate consumption of Z and would be given by:

Figure 1

$$Z = Z(x, t'_h) = Z \left[\frac{a\hat{H}^1}{P_x} t_w, t_h \psi(\hat{H}^2) \right]$$

(Source Figure 2.1 Becker, 1993 p31) (1)

where \hat{H}^1 and \hat{H}^2 are optimal capital stocks, $a\hat{H}^1$ is the wage rate $t_h \psi(\hat{H}^2)$, is the effective amount of household time, and p_x is the price of market goods. The allocation of time is constrained by

Figure 2

$$t_w + t_h = t',$$

(Source: Figure 2.2 Becker 1993, p31) (2)

where t_w and t_h are the hours allocated to the market and household sectors respectively, and t' , is the total time available each year, after allowance for the time spent maintaining capital. Becker states that the allocation of time would be optimal if the marginal product of working time equalled the marginal product of household time:

Figure 3

$$\frac{\partial Z}{\partial t_w} = \frac{\partial Z}{\partial x} \frac{\partial \hat{H}^1}{\partial p_x} = \frac{\partial Z}{\partial t_h} = \frac{\partial Z}{\partial t'_h} \psi(\hat{H}^2) \quad (3)$$

(Source: Figure 2.3 Becker 1993, p32)

The model is developed and in multi person households there would, in order to maximise efficiency, need to be a situation where each person was working to their comparative or relative efficiencies. Assuming all other things were equal (all persons intrinsically identical, the receipt of an equal share of output) there would be a similar division of time between household and market. He goes on to say that the *effective* time of different members would be perfect substitutes even if they accumulated different times of household capital (H^2) and vice versa with market capital (H^1). If Z was the optimal accumulation of capital and if each member accumulated the same capital, Z would depend on the aggregate of hours between household members supplied to each sector (Figure 4).

Figure 4

$$Z = Z(\sum x_i, \sum t'_{hi}) = Z(\sum a \hat{H}^1_i t_{wi}, \sum \Psi(\hat{H}^2_i) t_{hi})$$

p_x

(Source: Figure 2.4 Becker 1993, p33)

(4)

If the capital of members differed then the household (or market time) of some members would be more productive than that of other members, then Z would depend on the distribution of hours (if the capital of members differed) and output would only be maximized if marginal products in the household sector equalled marginal products in the market sector for members supplying time to both sectors:

Figure 5

$$\frac{\partial Z}{\partial t_{wj}} = \frac{\partial Z}{\partial x_j} \frac{\partial \hat{H}^1_j}{\partial p_x} = \frac{\partial Z}{\partial t_{hj}} = \frac{\partial Z}{\partial t'_{hj}} \Psi(\hat{H}^2_j) \text{ when } t_{wj}, t_{hj} > 0.$$

(Source: Figure 2.5 Becker 1993, p33)

(5)

Marginal products in the household sector must exceed those in the market sector for members supplying all their time to the household and the same applies for those supplying all their time to the market. The comparative advantage of a member can be defined by the relationship between the ratio of his marginal products in the market and household sectors and in relation to ratios of other members. Becker finalises this by showing that since a , p_x , $\partial Z/\partial x_j$, and $\partial Z/\partial t'_{hj}$, are the same for all members comparative advantage depends only on $\Psi(H^2)$ and H^1 .

The resulting theorems Becker developed (see Table 2) are summarised below:

Table 2: Summary of Becker's Theorems

	Assumption	Premise	Behavioural Outcome
Theorem 1 TIME ALLOCATION	All member of an efficient household have different comparative advantages	Only one member would allocate time to both market and household sectors (equal marginal products between household and market)	The rest with greater comparative advantage would specialise completely in the market (or household) Greater marginal product in market (or household)
Theorem 2 HUMAN CAPITAL INVESTMENT		Only one member would invest in both market and household capital	The rest with greater comparative advantage would specialise in investment completely or in the market (or household)
Theorem 3 HOUSEHOLD EFFICIENCY	No assumption about returns to scale changing or the sorting of persons into different households	Only one member would allocate and invest in both market and household capital	All members are better off with increasing specialisms, outwith the one person who does both
Theorem 4 MARKET LED CHANGE IN EFFICIENCIES	Commodity production functions have constant or increasing returns to scale and Assuming no joint production		All members of households would specialise completely in market or household sectors and would invest only in market or household capital
Theorem 5 LARGE HOUSEHOLD BEHAVIOUR	Larger households and assuming there are more members than independent commodities	Only one member of the household specialising	All other members of household specialising time to independent commodities unless constant or increasing returns to scale, when ALL members specialise

Source: Adapted from Becker (1993)

Methodology

The study on which the paper is based is an analysis of a 559 questionnaire responses. Postal questionnaires were sent out to a purposive population of rural micro and small enterprise owners in England, which included female led farm based and owned diversification enterprises (n 164) along with 'in-migrant' enterprises (n 395). Only the survey responses of the farm-based, NFOF respondents are examined in this paper. Questions were posed around the social and economic make up of the NFOF FREs

("farmers wives") and they were questioned about their farm, domestic, business and community roles in order to assess their socio-economic contributions to the rural areas in which they operated. Responses were analysed using SPSS.

As such, the results do not concentrate on a direct comparative analysis of roles between all family members of the 164 farms, but they do highlight the functions and roles undertaken by the "farmer's wife" and the paper looks at these roles, based on the assumptions and against the predicted behavioural outcomes of Becker's theorems.

Results

Tables 3 to Table 7 have been summarized from data analysis of FRE questionnaire undertaken. The tables show (using Becker's (1993) analysis of household and workplace capital investments) contributions made by "farm wives" in a number of ways. Respondents were asked questions about their levels of household responsibilities, to specify what their caring responsibilities were and to quantify the level to which their salaried/waged contributions to household incomes were necessary. The level to which these FREs support the family income is also significant in our analysis of capital investment into the division of household labour.

Table 3 shows the overall contributions to the [rural] economy made through the NFOF diversifications. These measures concentrate on employment, turnover, profit and additionally, the proportion of the total family household income being supplemented. Total farm family income is supported by 'over 50%', by 31% of the farm-based FREs in this sample.

Tables 4a and 4b represent the same data in slightly different formats. This data looks more specifically at roles within the household and covers domestic (household) responsibilities, which includes *inter alia* household budgets and affairs such as maintenance and caring roles. The role data were cross tabulated with farm household income supplementation. Moreover, data collated from the survey shows that 63% of farm based FREs had care responsibilities. With reference to domestic responsibilities, 73% of farm based FREs had 95-100% responsibility. Budgetary responsibilities were also significant, with 58.4% farm wives taking full responsibility for household budgeting. Households with the partner taking responsibility for household budgeting were low. Overall, within the household division of labour the farm based FRE had relatively high levels of responsibility, whilst also sustaining relatively high levels of family income supported through their enterprises.

Additional to this was the input of unpaid labour given to the family farm (see table 4b) made by 83% of the NFOF FREs.

Identified 'value' based FRE Outputs

Table 3: NFOF FRE Business Turnover, Profit, Employment and Household Contribution

	Turnover %			Profit %			Employment %		Income supplement %		
	Up to £60K	£61-250	≥£250K	Up to £10K	£11-40K	Up to £300K	Full-time	Part-time	≤ 50%	≥51 %	100 %
NFOF FREs	72	19	9	54	41	5	38	68	64	24	12

Table 4a: Identified Household Labour relative to family income contribution

		Level of Domestic Activity %					
Level of Supplementation			100%	76 -95%	51 - 75%	≤50%	Total
	0-25%		66	5.5	12.5	16	100
	26-50%		72	9	9	9	100
	51-75%		50	17	5	28	100
	Over 75%		76	6	0	18	100
	Replaces farm income		45	11	5	39	100

Table 4b: Identified Farm Labour relative to family income contribution

		Level of Income Supplementation %					
Hours working on farm		0-25%	26-50%	51-75%	Over 75%	Replaces farm income	Total %
	not applicable	100	0	0	0	0	100
	None	34	28	19	5	14	100
	1-15hrs	41	23	12.5	12.5	11	100
	16-30hrs	41	27	9	14	9	100
	Full time	37	22	9	16	16	100
	Total	39	25	12	12	12	100

Table 5: Unpaid and Voluntary Community Work

Hours of time	Voluntary work					Domestic Time				Care responsibilities**			Unpaid Farm Labour			
	<4hrs	4-6 hrs	10 hrs	Tot Hours	Total *	4hrs	8hrs	>8hrs	Total			Total FREs	<15hr	16-30	Over 30	
Farm Based FREs	21%	8%	3%	32%	54%	3%	55%	-	58%			45%	30%	8%	16%	54

* The total % of FREs involved in community work and the hours representing the % of that total involved for the stated period of time

** Time spent is not available. This will represent an area of FRE household labour efficiency as many roles will be multi- tasked e.g. incorporating shopping for/with an elderly neighbour with childcare etc. The total % shows level of FREs

FRE Outputs that cannot be measure but that have value

Table 6: Indicative 'Utility' Measures

	Social Cohesion			Economic			Investment		Networking		
	Harnessing spirit of Locality	Place	Social Glue	Local spending	Lobbying for rural	Environ-mental	Children	Wider Family	Ideas Exchange	Advice	
NFOF FREs	+	+	+				+	++	45.5%	36%	-

All data in Tables 3-6 inclusive have been summarized from data analysis of FRE questionnaire

This, logically, ought to be reflected in a proportional reallocation of household responsibilities either through greater levels of household responsibilities being taken on by the partner or through the 'buying in' of help. Table 7 however shows that most household roles remain firmly the remit of the FRE. Whilst 35% of the FREs looked for help with cleaning, beyond cleaning the call for help fell to between 13-20% looking for help with other roles that they had stated they had taken responsibility for. Cooking was, interestingly, not viewed as an option for delegated household responsibility.

Table 7: Household Help Take-up

	Farm Based
Help Accessed	%
Cleaning	35
Decorating	20
Gardening	19.5
Maintenance	18
Ironing	15
Child/care	13
Cooking	negligible

The first striking observation is that although these percentages are relatively low, many of these FREs have absorbed and assumed what may have, in the past, been seen as the responsibility of the male partner within the household. Apart from cleaning, those categories that do have the highest levels of input from outside the household are decorating, gardening and maintenance. This appears to be an interesting development regarding the division of labour within the farm-based household, in that more responsibility than ever before would seem to lie with the FRE. Budgetary responsibility and greater than ever levels household income are supplemented by FREs. Within that there appears to exist an implicit requirement to fulfil community need as well, reflected in table 5. Many farm based FREs offer anything from 0.5 of a day to up to 2 full days equivalent doing some form of voluntary community service, or, vis a vis the farm, more. Clearly, in order for any realistic profile of the NFOF FRE to be developed, more information is needed about the relationship that she may have with the operation of the fundamental family business, the farm, from which her business is either derived from, or generated for. Warren-Smith and Monk (2001) identified that there were additional cultural, social and hereditary drivers that affected NFOF enterprises, invariably started and run by women that perhaps did not affect other FREs. These revolved around: the desire to keep the family located at the home which may have been in the family for generations [hereditary]; linked to this, the cultural pattern of the women within farm

families generating extra income when farm incomes fall; the positive influence of many NFOF FREs already helping with the administration of running one business and the negative one of operating within what is known to be a 'risk averse' industry. The cultural expectations and pressures, rarely mentioned but within the farm families well understood, of assumed and unquestioned unpaid labour, whenever the vagaries of the farming year dictated it required them, also make it important to know more about the ties to the actual farm itself.

Previous work (Warren-Smith & Jackson 2004) has indicated that the smaller, mixed or livestock farms, that were under 200 acres and therefore possibly not achieving any real economies of scale, were the ones most likely to have NFOF diversifications. This was corroborated by the responses received for this survey with 63.5% of respondents having farms of 200 acres or less. Twenty one percent of NFOF FREs had business on farms between 201 – 500 acres and the remaining 15.5% were located on farms of over 500 acres.

More recent statistics (DEFRA, 2009) suggest that it is the larger farms which are those that are currently more likely to diversify. However, these statistics refer to new diversifications. Research from the benchmarking study (2002) shows that diversification take-up had initially been on smaller farms and at that point, the benchmarking study showed the rate of diversification on large farms was increasing. Clearly this trend has continued.

Of the NFOF FRE responses, 70% claimed they had diversified the farm additionally to the NFOF enterprises being run by the FREs. When cross tabulation was run to see if the size of farm played any significant role in this decision, there was no significant differences between the size of the farm and whether or not it had diversified. However, whereas size played no significant role in this sample, whether the farm was owner occupied or tenanted did, with 59.8% of all respondents being owner occupied farms with a further 18% also renting land/buildings and only 16% being tenant farmers. It was interesting to note that 6% had no land, although they were living on farms.

Analysis to check if there was any correlation between the type of farm and whether there was a NFOF business located on it revealed that 35% were livestock based and 30% were mixed, with only 19% arable and 7% 'other', mainly poultry or horticultural farm businesses. Nine percent were not involved with production farming. When this 9% were analysed 6% were in-migrants having bought farms with a small holding of land (not farming) and 3% had come out of farming and were running caravan parks or other tourism and leisure based businesses. Table 4b shows the levels of unpaid labour given to the farm in more detail, cross tabulated with the levels of income supplementation. Further analysis was done in order to check if there were any correlations between the type of farm and the level of time the NFOF FRE would be likely to spend doing farm

work. Gasson (1989) found in her work that women were more likely to be called in as extra labour on farms with livestock and/or poultry than on other types of farm and spent far longer hours on farms of this type than women (wives) on other types of farm. Inevitably there was a relationship between the number of hours spent involved on the farm and the type of farm. Within the 15% that spent only 5 or less hours helping out on the farm, 10% of FREs located on livestock and mixed farms spent less than 5 hours of their time on the farm, compared to 28% of FREs on arable farms. Overall, 32% of the FREs spent over 20 hours (or more than 3 working days equivalent) helping out as unpaid labour on family farms, with 26% spending up to 10 hours and 27% spending up to 20 hours on farm. Most of these were on livestock or mixed farms. Clearly this must have implications for the success of any NFOF enterprise without the added effects that caring and community roles undertaken by these same FREs who, it had already been established, give more of their time to their community as well. What generally emerges is that there are NFOF FREs that concentrate on smaller lower income generating businesses but have greater levels of social investment into their communities, with the NFOF FREs that have larger businesses generating greater levels of economic investment into their communities through employment and other multipliers. That said, whichever category they fell into, the effect of being located on and part of a working farm meant that they were inextricably tied into all that being 'on farm' entails. This goes some way to explaining why being one's own boss is significantly less important to a NFOF FRE, where helping to run an independent family business is already part of their daily experience, than it is to FREs that are not farm-based. It similarly explains why extra income was so crucial to NFOF FREs compared to the non farm based FRE. Clearly NFOF FREs face differing cultural (family) and economic and locational pressures (the farm) to the other FREs. Explanations for these differing pressures, elicited from focus groups held in Shropshire, were often complicated. Many involved wide ranging family politics, such as bearing the burden of the family farm having been held in ownership for previous generations and not wishing to be the generation responsible for its demise. Similar is the weight of responsibility for ensuring that the family farm, inherited by the oldest son often at the expense of weakened sibling relationships, remains successful.

Discussion

Approaching an assessment of the roles and contributions of these FREs [farmers wives] with respect to running their enterprises in relation to an analysis of capital within the farm family as a whole, allows a less contrived assessment of the relative efficiencies of them doing so.

The ascendancy of a tertiary based economy, to which the skills of the female are better lent (Parsons and Warren-Smith 2001), would suggest that FREs have comparative

advantage in the wider marketplace. For NFOF FREs this is doubly so as the market for agricultural commodities becomes less rewarding as time progresses. Competition for the allocation of time and effort of FREs, in terms of the division of labour therefore increases, particularly for NFOF FREs. At the same time, the continuing cost price squeeze for farming has resulted in increasing amounts of (unpaid) labour being required of the FRE. That combined with increasing levels of bureaucracy which has often required the NFOF FRE to accommodate the administrative burden of the farm business means that increasing marketplace specialism has been required of her in terms of marketplace capital investment. This combined with the household sector responsibilities that are evidently still the remit of the NFOF FRE would suggest a number of conclusions. Becker notes that continuing responsibility for household work and care and the relative effort expended in carrying out this labour results in lower effort levels being available for market human capital activity. However, continued pressure for extra marketplace labour, without a commensurate reduction in domestic labour would automatically result in inefficient allocation of time, human capital and reduced household efficiency. Although evidence exists for the increasing 'buying in' of domestic and household labour for NFOF FREs (see Table 5) that in itself would not redress the imbalance that must exist. Clearly having comparative advantage in the marketplace has not resulted in a balanced equation of activity between the sectors, with commensurate exchange or reduction in household sector activities. Overall, the level of domestic labour has increased rather than decreased. The response of micro business start-up implicitly acknowledges the biological comparative advantage that women have as NFOF FREs juggling the need to create extra income with the flexibility of being self employed or starting an enterprise. For NFOF FREs, lone parents and other FREs that engage with enterprise start-up at child rearing stage, it is a potential solution to an equation that does not become balanced even when the marginal products of the market sector outweigh the marginal product of the household sector. Ideally, it could be argued, that in an efficient household, the male partner in this situation should stop farming and specialise in allocating time capital (effort) to the household sector, or, reduce farm input and increase input (effort) in the household. Becker also assumes that in the event of there being equal competition in the marketplace (rather than *different* competition) this would result in the shared costless responsibility within the household. There is an interesting dynamic of increasing inefficiency within farm based households, that is at odds with what should be market-led efficiencies, where the farm takes precedence over economic decisions at the expense of the potential gains of selling or change of use. The ever increasing output required of the NFOF FRE in order to maintain the level of income earned exposes another treadmill situation within the agricultural sector but this time, not one that the farmer is on.

Interestingly, the lack of uptake with childcare when available, suggests that this is not an acceptable labour exchange for NFOF FREs with [young] children, or, it could be seen as a reduction in the investment of the child's human [emotional] capital, in terms of future farm security. Alternatively, it could be that the discounted value of raising young children (as the 'future' of the farm) is greater if the NFOF FRE invests and inputs her time into the household, rather than the buying in of assistance for this task. In either situation, clearly the farm, seemingly irrespective of any *rational* choice, takes precedence.

Conclusion

The ostensibly irrational choice of the NFOF FREs cannot be explained using the rational choice approach of Becker. The combination of external pressures brought to bear on the NFOF FRE additional to the community, household and market sector pressures that other non farm based FREs encounter, indicates that an explanation for NFOF FREs choice to increase their workload through additional enterprise development is more about survival and family [farm] resilience. Indications are that the ability of the NFOF FRE to manage internal household requirements and activities relative to the management of external ones are crucial to the continuation of the family farm. Becker (1995) subsequent to his work in 1993 observed that 'ignoring household labour distorts statistics [and robs those who stay at home - mostly women - of self esteem]'

The ongoing devaluing of micro-enterprise start up by government business support agencies and implicit subjugation of them as "pin money" hobby enterprises is revealing. Firstly in terms of exposing the fundamental weakness[es] of a narrow neo-classical models and approach to measurement and secondly in the failure of policy makers to grasp the complexity of roles that are undertaken in the process of maintaining healthy and sustainable communities, driven by the imperative of the models that are promulgated.

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