Nature's Bounty

Reflections on the *Less is More* Report

Note 10 April 2020

Setting the Context

1. The report *Less is More* puts forward a simple thesis based on the analysis of the business results of some 43 upland farms. That thesis is *that the nature of variable cost profiles in farming change fundamentally at the point at which the natural grass available runs out.*
   1.1. In consequence the authors introduced the concept of two types of variable costs (and gave each a *new* name)
      - Productive variable costs, which are those items associated with the conversion of *nature's bounty* (e.g. grass).
      - Corrective variable costs, which are those associated with substitutes for *nature's bounty* (e.g. artificial fertiliser).
   1.2. The authors also referred to this phenomenon as a case of non-linear variable cost profiles.
      - In fact, the phenomenon is a combination of two linear cost profiles being actuated at different volumes of activity. However, if a single composite variable cost profile was to be sought, this would be non-linear.

2. The authors accept that there are hazards in mixing the perspectives of accounting and economics.
   2.1. However, farmers do (usually) have a business model in mind when taking decisions. That model is (invariably) the standard economic theory of the firm and the usual interpretation applied is that, in order to recover the burden of (often high) fixed costs profitably, the burden needs to be spread over as large a volume of output as possible. NB Economists often point to this sort of behaviour as the intuitive application of marginal cost benefits (and it is).
   2.2. The authors have tried to avoid a focus on marginal cost analyses as a mainstream tool for taking business decisions.
      - It will be misleading whenever the profile of variable costs are not known accurately in an algebraic sense. Moving from a single linear variable cost model (as is traditional in economic theory) to one where variable costs are bifurcated (or worse) in some way changes all possible conclusions fundamentally.
      - In matrix algebra if [A]*[X] = [1], and A is the matrix of conversion costs for products and their component processes then X will be the matrix of marginal costs (for the same products and processes). The question then becomes that

of is this true in all frames of reference (i.e. is it universal)? As marginal cost is a function of output (volume) every specific case will be different to different observers (in time). At this point we are in tensor algebra territory (to correct for an universal frame of reference) and issues way beyond simple farm profitability.

3. Definitions can be a source of disagreement when these are put forward in an un-familiar form. The authors have had to give names to some new concepts and the names may not be to everyone's taste. This has proved to be the case with productive variable costs, corrective variable costs, and maximum sustainable output. The nomenclature simply reflects the way the issues made an impact on the authors.
   3.1. Accounting nomenclature can be just as opaque to many as economic nomenclature. The authors chose to analyse all accounts from a level-of-contribution standpoint:
      - Revenue – Variable Costs = 1st level contribution
      - 1st level contribution – Fixed Costs = 2nd level contribution
      - 2nd level contribution – Farmers Draw = 3rd level
      - Etc, to get (ultimately) to taxable profits

   3.2. Farms that do not make a positive 1st level contrition are unviable (on the grounds that unrecoverable cash is lost).
   3.3. Farms that make a 1st level contribution but do not make a positive 2nd level of contribution are unprofitable. These farms fail to recover all fixed costs.
   3.4. Farms that make a 2nd level contribution must then deliver a draw which provides a living wage for the farming family to be judged truly profitable
   3.5. Farms that make a 3rd level contribution can put this to measure its return on capital employed. If this is less than the savings rate plus a premium (say, 5% +) for risk the capital invested would be better-used elsewhere.

4. Of the farms analysed:
      - 4% did not make a 1st level contribution (before support payments)
      - 72% did not make a 2nd level contribution
      - Only 14% made a 2nd level contribution
      - None produced an adequate return on capital employed

Observations

5. Upland farming is unviable without financial support.
   5.1. At MSO (the point of maximum sustainable output = when the grass runs out) the technical and economic maxima coincide (and equate).

5.2. The use of farm-yard manure (provided it has only modest transport costs) is a worthwhile pursuit and that its' historical pattern of use at a farm may well have an impact on the MSO.
    - NB The use of artificial fertilisers or feedstocks is altogether different. For example, it can take over 5kg of cake to produce 1 kg of live-weight gain (which in calorific terms is the consequence of the 2nd Law of Thermodynamics). The cost of the cake (after delivery) is wholly extra to the grass it replaces and if 5kg of cake is greater in cost than the value of 1kg of livestock the use of artificial feed-stocks (and even remotely-sourced hay) is nonsensical.
    - The authors believe that for every farm there is an optimum balance between stock numbers (and the consumption of grass and the production of manure) and the split of acreages set aside for real-time grazing and the separate production of hay
5.3. Bad farming policy (reflecting some new environmental standards) will have a detrimental effect on the burden of fixed costs.
5.4. Adding-value (to move towards a branded-goods offering) is easier said than done and that on farms that struggle to be viable their prospects to become successful entrepreneurs does not augur well.
5.5. With the impending withdrawal of current support payments, and the consequent threat to farming activity, the question arises as to what sort of payments might be offered for what sort of public goods or benefits to keep some farms in existence.

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