RURAL ECONOMIC GROWTH LINKAGES AND SMALL SCALE POULTRY PRODUCTION: A SURVEY OF PRODUCERS IN KWAZULU-NATAL

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Abstract

This study analyses survey data gathered from small and large poultry producers in the rural areas of KwaZulu-Natal, and highlights factors constraining the impact of commercial poultry production on the local economy. It was found that small-scale poultry production has the ability to initiate economic growth through the "export" of its products and to draw under-utilised resources such as labour into production. The impact of the subsequent multiplier effect is most likely strongest in the non-tradable, non-agricultural sector. Alleviating constraints for a large number of small enterprises is expected to impact more positively on the rural economy than if a few larger enterprises were encouraged to grow bigger. The descriptive results suggest that small producers face much higher transaction costs than larger producers. Government policies should focus on absorbing some of these transaction costs to nurture economic growth in the rural areas of KwaZulu-Natal, i.e. by improving education, physical infrastructure and technology transfer through extension. Other important interventions include the provision of mentoring and training services for new managers including institution, legal and financial management instruction.

1. INTRODUCTION

In the developing areas of South Africa, like in other developing countries, small-scale farmers find it difficult to participate in commercial markets due to a range of constraints. Such barriers include high transaction costs (Fenwick & Lyne, 1999; Makhura, 2001), a shortage of quality labour (Nattrass & May, 1986), poor liquidity, including low cash income and limited access to credit and saving facilities (Christensen, 1993; Udry, 1995), a dearth of information (Delgado, 1996), tenure insecurity (Thomson & Lyne, 1993) and weak growth linkages (Delgado *et al*, 1998). Groenewald (1993) maintains that a lack of entrepreneurship, expertise, tenure security, access to product and factor

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markets, small farm size and inappropriate technology are the major bottlenecks to agricultural modernisation in third world agriculture.

Small-scale commercial poultry enterprises, nevertheless, are often promoted and used by Government and NGO's in development projects to (a) improve food self-sufficiency and alleviate malnutrition as it provides an excellent protein source (Farrell, 2000; MacGregor & Abrams, 1996), and (b) to create income generating activities (Wethli, 1999; Mingay, 1998; Trollip, 1998). Improving food self-sufficiency within rural communities will only mitigate poverty by improving nutrition. To exit the poverty cycle, sustainable economic growth through increased employment and income generation needs to be created in poor rural areas (Fairlamb & Nieuwoudt, 1990).

Small-scale commercial poultry production is widely seen as an appropriate vehicle to stimulate economic growth in poor rural communities (Gueye, 1998; Sonaiya, 1998; Slippers, 1998; Wethli, 1998). This does not mean that commercial poultry producers must remain small. Hazell & Roell (1983) argue that economic growth should transpire when very small farms are transformed into larger entities, where economic growth can be defined as an increase in rural household incomes flowing from additional local production and employment. This effect is "multiplied" if further production and employment result from the initial increase in household incomes; where the multiplier is defined as the ratio of change in "local" income to the change in autonomous expenditure that brought it about (Lipsey, 1989:484). This study examines the economic theory of growth linkages and explores the effects that small and larger poultry producers have on local economic growth using descriptive empirical data and principal components computed from sample data gathered in a survey of 123 poultry farmers in KwaZulu-Natal.

2. DATA COLLECTION AND RESEARCH METHODOLOGY

In order to establish what growth constraints inhibit small entities from developing into larger ones, two concurrent surveys were undertaken to ensure variation of enterprise size in the sample data. The first survey comprised a two-stage stratified sample, which was used to sample mostly small-scale commercial poultry producers operating in communal areas of KwaZulu-Natal. The primary sampling frame was a list of government extension officers operating in KwaZulu-Natal. These extension officers in their respective locations were randomly selected and were asked to help conduct interviews with known producers (secondary sampling units) using a structured questionnaire. On average, six interviews were conducted in each

of 11 locations (strata). Fieldwork commenced in December 1998 and was completed in February 1999.

The second survey targeted mostly larger-scale commercial poultry producers (excluding public companies like Rainbow Chickens) using a postal survey. The KwaZulu-Natal Poultry Institute (KZNPI) provided a list of 305 valid addresses for producers who purchased chicks (layers and broilers) from recognised hatcheries. Questionnaires were mailed in November 1998 and the last responses were returned in February 1999. Both surveys employed the same questionnaire. An overall response rate of 22,6% was achieved which was reduced to 19,0% because 11 responses were unusable.

It was hypothesised that small and larger enterprises affect local economic growth differently. Group means were computed from the pooled survey data (n=123) using the median of total product sales per annum per enterprise (R30,240) to discriminate between larger and small producers; their significant differences are presented in Table 1.

Table 1: Univariate differences between small and larger enterprises for total product sales per annum per enterprise in KwaZulu-Natal, 1999

Discriminatory Variable	Small Enterprise		Larger Enterprise		T value
	N	Mean (Rand)	N	Mean (Rand)	
Layer income[A]	11	3,273	14	1,058,583	**2.620****
Broiler income[A]	56	12,415	54	686,467	**2.513****

Notes: 1. [A] Some producers operated both layer and broiler enterprises.
2. Equal variances not assumed and one tailed t-test used.
3. ***, **, * significant at the one, five and ten percent levels of probability respectively.

Some of the more obvious variables expected to influence the economic growth of poultry enterprises in KwaZulu-Natal are presented in Table 2. The background economic theory to these variables and others that are less easily measured are discussed in the subsequent section.

Table 2: Hypothesised growth linkage, growth multiplier and institution variables influencing poultry enterprise growth in KwaZulu-Natal, 1999

Variable	Description	Expected Sign
Growth Multiplier Variables		
Growth rate	Current bird numbers less initial numbers divided by years in operation	+
+R100 non-tradables	Dummy scoring 1 if addition R100 spent on tradables, 0 otherwise	+
+R1000 non-tradables	Dummy scoring 1 if addition R1000 spent on tradables, 0 otherwise	+
Growth Linkage Variables		
Transaction cost	Index of transaction costs created by Principal Component Analysis	-
Technology	An index of technologies created by Principal Component Analysis	+
Local market	Dummy scoring 1 if enterprise's main market is local market, 0 otherwise	-
Grow own feed	Poultry producers who grow their own feed	+
Housing made locally	Poultry producers who purchase locally produced housing	+
Feeders made locally	Poultry producers who purchase locally produced feeders	+
Drinkers made locally	Poultry producers who purchase locally produced drinkers	+
Heaters made locally	Poultry producers who purchase locally produced heaters	+
Institution Variables		
Informal associations	Dummy scoring a 1 for informal groups or trusts, 0 otherwise	+/-?
Company	Dummy scoring 1 for closed corporation or private company, 0 otherwise	+

3. TRANSACTION COSTS, GROWTH LINKAGES AND ECONOMIC GROWTH

3.1 Transaction costs

Broadly defined, transaction costs are the full costs of carrying out exchange (Coase, 1960) where transaction costs vary by product, type of agent in the marketing chain and the individual agent within a category of agents (Delgado, 1996). Transaction costs also encompass the search for a trading partner and screening thereof, bargaining and decision-making costs, transferring the product (typically transportation, processing, packaging and securing title if necessary), policing or monitoring the agreement to see that its conditions are fulfilled, enforcing (or seeking damages for any violation of) the exchange agreement and the costs associated with the risk and uncertainty of transferring goods and services in view of imperfect information (Dahlman, 1979; Staal *et al*, 1997). Consequently, economic growth is constrained by higher transaction costs.

A single transaction cost variable was computed from the survey data using Principal Component Analysis (SPSS version 9.0, 1999), which captures the majority of variation in some of the main underlying transaction cost variables effecting rural poultry enterprises in KwaZulu-Natal (Table 3). These transaction costs were hypothesised to be a function of poor telephone access, an inability to speak English, low education levels and a large "real" distance to commercial centres (represented by the producer's feed supplier). This "real" distance transaction cost indicator becomes insignificant if households own a vehicle/s in which case it is set to zero.

Table 3: Results of the Principal Component Analysis used to determine a transaction cost variable for rural poultry producers in KwaZulu-Natal, 1999

Underlying Variable (scoring 1, otherwise 0)	N	Mean	Index Weights (First Principal Component)
Telephone access	118	34.75%	0.803
Vehicle ownership x distance to feed supplier	118	13.89 km	0.747
Inability to speak English	118	33.90%	0.857
Education[A] (standard achieved)	118	7.42 stds	-0.884
Eigen Value			**2.710**
% Variation			**67.74%**

Note: [A] The negative sign implies a reduction in transaction costs as education increases.

It is important to note that some conceptual and measurement difficulties arise when attempts are made to quantify transaction costs. When transaction costs are high enough to prevent exchanges from occurring, these costs cannot be observed because no transaction exists. Observed transaction costs therefore may not provide much of a guide for policy interventions that are intended to promote entry by producers into certain activities that are not currently undertaken (Staal *et al*, 1997).

Makhura (2001) has shown that market participation is also a function of *ex ante* transaction costs. These are mainly fixed costs associated with the search for trading partners, negotiating and drafting an agreement. Fixed transaction costs are higher when farms are isolated from markets and information sources by inadequate infrastructure. In this regard, Fitschen & Klitgaardt (1996) and Alwang *et al* (1996) found strong relationships between rural poverty and isolation from infrastructure in the former KwaZulu homeland.

Once the *ex ante* transaction costs have been overcome, the extent of *ex post* transaction costs affect the level of participation. *Ex post* transaction costs include risk premiums for moral hazard (*i.e.* a breach of contract). These

transaction costs increase with the size of a transaction and therefore affect volumes traded and the type of contracts observed. Local sources of *ex ante* and *ex post* transaction costs include:

- Limited access to communication technology such as telephones and postal services (Hendriks & Lyne, 2003; Matungul, 2002:81, 101);
- Large distances to towns over poor roads (Fitschen & Klitgaardt, 1996; Matungul, 2002:101; Hendriks & Lyne, 2003; Makhura, 2001:73-74);
- Limited access to vehicles for transport (Makhura, 2001:73-74; Matungul, 2002:95; Hendriks & Lyne, 2003);
- Tenure insecurity that reduces available collateral and information for lenders, increasing risk premiums and thereby rationing credit access (Fenwick & Lyne, 1999);
- Low levels of education that create difficulties in assembling and interpreting information (Matungul, 2002:81; Makhura, 2001:67-68; Feder & Slade, 1984);
- A disintegration of community traditions and trust that increases moral hazard (Crookes, 2002:76-77); and
- Dual legal systems where disputes involving local contracts and property rights are usually heard by traditional rather than formal courts of law (Lyne, 1996).

Legal uncertainty caused by the existence of a dual legal system results in uncertainty about the validity of contracts, compensation and enforcement of court rulings in tribal areas, particularly for women (Lyne, 1996). Women also face particularly high transaction costs in the informal credit market because they have a lower social standing than do men (Berry, 1993). This has significant consequences considering that women feature prominently in rural poultry enterprises (Spradbrow, 1997; Chitukuro & Forster, 1997; Bisschop, 1997; Gumede, 1986; Safalaoh *et al*, 1998; Gueye, 1997).

3.2 Linkages in agriculture

Growth linkages can be grouped into backward and forward linkages arising from the establishment of a new production activity. Backward linkages consist of derived demand for inputs and forward linkages consist of the induced creation of new productive activities from having a new intermediate product in the market. Agricultural growth was thought to have little effect on new effective demand for intermediate inputs or new induced downstream activities (forward linkages) because of the consumptive nature of agricultural

products (Hirschman, 1958:109; Hazell & Roell, 1983), especially in the case of technologically stagnant subsistence agriculture. Non-agricultural sectors were thought to have greater linkages in the overall economy resulting in a higher multiplier effect.

However, including all backward linkages in the analysis gives a more comprehensive assessment of growth linkages in agriculture (Mellor, 1976:161). Growth in the agricultural sector increases incomes of producers and hence raises rural demand for consumer goods and services from outside the agricultural sector, particularly when the economy is closed. In agriculture, such backward-based linkages can impact economic growth four to five times more than forward based consumption linkages (Delgado *et al*, 1998).

3.3 Tradable and non-tradable goods

By definition, tradable goods are supply-constrained in small price-taking regions. New excess demands are met either by increased imports or decreased exports of the good or close substitutes *ceteris paribus*. Since tradable goods are supply constrained, increasing or shifting the supply curve to the right will promote economic growth. This shift can be achieved through increased investment in public and private goods or through correcting existing distortions in input prices, where comparative advantage determines which tradable goods are produced in a particular area (Delgado *et al*, 1998).

Non-tradable items are goods and services that at prevailing relative prices are rarely, if ever, traded across borders of the chosen trading zone, and do not have close substitutes in local consumption. Non-tradable goods and services are demand constrained; *i.e.* increases in demand within a defined trading zone will lead to increased local production of these items and hence growth. Therefore, the more elastic local supply is for non-tradables, *ceteris paribus,* the greater is economic growth. Ngqangweni (2000) and Hendriks & Lyne (2002) report that the expected value added from farm non-tradables is roughly half that from non-farm non-tradeables.

Goods cannot be both supply and demand constrained and therefore, cannot be classified as tradable and non-tradable goods simultaneously. However, virtually no good is intrinsically non-tradable because tradability is a function of price and transfer costs to external markets. Therefore, smaller trading zones are expected to have fewer non-tradables and less economic growth, *ceteris paribus*. Increasing the size of trading zone does not effect consumption patterns, but rather increases the marginal budget share to non-tradables. In this study, a radius of 20km - the approximate one-way distance that old

tractors, donkey carts and bicycles can transport their tradable products within a day - is used as the benchmark.

3.4 Growth multipliers

Agricultural led growth had strong multiplier effects in Asian local and regional economies during the Green Revolution of the 1970's, stimulating substantial economic development through increased local employment and increased rural spending power (Delgado *et al*, 1998). However, three South African studies by Belete *et al* (1999) and Ngqangweni (2000) in the Eastern Cape and Hendriks & Lyne (2002) in KwaZulu-Natal estimated rural multipliers (1.35, 1.98 and 1.28 respectively; *i.e.* R1,00 increase in household income is predicted to add an additional 35, 98 and 28 cents to the local economy) to be far lower than Asian growth linkage estimates but which are comparable with estimates for local economies in Burkina Faso, Zambia and Senegal (Delgado *et al*, 1998). The low growth multipliers estimated by both Belete *et al* (1999) and Hendriks & Lyne (2002) suggest that growth multipliers for rural South African economies are substantially weaker than other African countries. This can be attributed to South African households in general being less remote than other African countries; *i.e.* a smaller proportion of a household's budget share is spent on non-tradables.

Table 4: Univariate differences between small and larger poultry enterprises for growth multiplier variables in KwaZulu-Natal, 1999

Growth Multiplier Variables	Small Enterprise		Larger Enterprise		T value
	N	Mean	N	Mean	
+R100 spent non-tradables	61	0.56	59	0.41	1.655
+R1000 spent non-tradables	61	0.67	59	0.37	**3.409*** **

Notes: 1. Equal variances not assumed and one tailed t-test used.
2. ***, **, * significant at the one, five and ten percent levels of probability respectively.

Table 4 shows that if larger poultry enterprises received an additional R100 and R1,000 per production batch respectively their marginal budget share spent on non-tradables would have decreased from 41% to 37%. Conversely, the marginal budget share spent on non-tradables increased from 56% to 67% for small enterprises. These trends are consistent with *a priori* expectations because wealthier consumers (*i.e.* owners of larger enterprises) are more inclined to save additional income or reduce their debt burdens. Savings, debt redemption, spending on household appliances, most food and clothing are considered tradable because they result in cash flow exiting the local trading zone. Expenditure on buildings, schooling, medication and reinvestment into the enterprise are considered non-tradable. Consequently, if one Rand were added to the income of a small producer the growth multiplier would be

higher as their marginal budget share for non-tradables is higher than that of larger enterprises. Therefore, alleviating growth restraints for a large number of small enterprises is expected to impact more positively on rural economic growth than if a few large enterprises were encouraged to become bigger.

3.5 Initiating economic growth

The presence of high transaction costs and the prevalence of non-tradable products would explain why some rural household resources are under-employed; *e.g.* people may want to work but there is nothing remunerative to do in a growth stagnant area. Developing an enterprise that produces a tradable product such as poultry, which draws on under-utilised resources such as labour (*i.e.* for husbandry practices and local manufacture of inputs such as cages) has the potential to stimulate economic growth.

The initial impetus to growth comes from relieving supply constraints (Delgado *et al*, 1998). This usually involves technological change that cuts unit costs of production for tradables, but could be any factor that shifts the supply curve for tradables to the right; *e.g.* improved infrastructure that reduces transaction costs (Delgado, 1996). In the case of rural poultry production a single technology variable was computed from the survey data using Principal Component Analysis (SPSS version 9.0, 1999) capturing the majority of variation in some of the main underlying technology variables (Table 5). This technology variable is a positive measure of adoption; the use of automated water and feed supplies indicates a high level of technology adoption, the use of bell or nipple drinkers a medium level, and the use of founts or trough drinkers a low level.

Table 5: Results of the Principal Component Analysis used to determine a technology variable for rural poultry producers in KwaZulu-Natal, 1999

Underlying Variable (scoring 1, otherwise 0)	N	Mean	Index Weights (First Principal Component)
Automated feed supply	124	0.56%	0.422
Automated water supply	124	38.71%	0.937
Use of bell/nipple drinkers	124	47.58%	0.944
Use of founts/trough drinkers[A]	124	54.03%	-0.954
Eigen Value			**2.856**
% Variation			**71.41%**

Note: [A] The negative sign implies non-adoption of technology.

Backward growth linkages are maximised when farmers and their labour spend their income (earned from the sale of a tradable product such as poultry) on goods and services that are locally produced, non-agricultural, labour-intensive and non-tradable in nature (Mellor, 1976:182). The more open an economy is to trade non-agricultural products, *ceteris paribus*, the lower the estimated growth multipliers for agriculturally based linkages. This is not an argument against openness since the initial growth impulse requires a dynamic tradable sector. Rather, backward growth linkages are more likely to induce rural growth when non-tradables constitute a major share of the local economy. A key issue is the propensity of rural households to consume non-tradable goods and services out of additional income.

The focus on the non-tradable sector is important because the impact of growth multipliers is maximised when incremental income is spent on non-tradable goods and services whose supply is price elastic (Delgado, 1996). This assumes that net extra demand for these goods and services is fully transmitted into increased production of these items, through increased use of otherwise under-utilised factors of production such as labour (Johnston & Mellor, 1961; cited by Delgado *et al*, 1998). However, the supply of non-tradables becomes inelastic in the presence of high transaction costs that increase the costs of production (Haggblade *et al*, 1989).

Wynne & Lyne (2002) found that growth rates of rural poultry enterprises are constrained by small initial enterprise size (*i.e.* failure to capture size economies), inability to participate in well traded "urban" markets (*i.e.* markets with less price variability), poor access to credit (a function of wealth, liquidity, organisational structure and gender) and high transaction costs (a function of distance from markets, transport availability, telephone access, education and ability to speak English). In a survey of small-scale farmers in Mpumalanga, Makhura *et al* (1998) found that the larger farmers (where arable land is used as a measure of size) have better access to formal markets, credit and information, and that they demonstrate greater managerial capabilities such as record keeping than do smaller farmers. Mbowa & Nieuwoudt (1998) found that small sugarcane farms in KwaZulu-Natal producing less than 500 tons of cane (±10 ha) require significantly more resources to produce a Rand's worth of output than farms producing more than 2,500 tons (±50 ha). This is evidence of strong size economies, *i.e.* declining costs per unit produced as fixed costs (*e.g.* management, supervision, machinery, information and most transaction costs) are spread over a greater output. The smaller farm with limited output and certain unavoidable fixed costs finds itself at a disadvantage (Huffman, 1974; Welch, 1978:259). This is supported by the empirical survey data in Table 6, which

indicates a significant difference between small and larger poultry enterprises for growth rate (average annual increase in the number of birds housed), transaction costs and technology adoption variables.

Table 6: Univariate differences between small and larger poultry enterprises for growth linkage variables in KwaZulu-Natal, 1999

Growth Linkage Variables	Small Enterprise		Larger Enterprise		T value
	N	Mean	N	Mean	
Growth rate	60	20.01	60	984.21	**4.453*** **
Transaction cost[A]	61	13.73	62	-5.19	**7.736*** **
Technology[B]	61	-0.58	62	1.21	**9.486*** **
Local market	61	0.85	62	0.31	**7.309*** **
Grow own feed	62	0.00	62	0.01	**2.313*** **
Housing produced locally	61	0.93	62	0.62	**4.588*** **
Feeders produced locally	61	0.18	62	0.08	1.643
Drinkers produced locally	61	0.08	62	0.02	1.692
Heaters produced locally	44	0.07	53	0.02	1.152

Notes: 1. Equal variances not assumed and one tailed t-test used.
2. ***, **, * significant at the one, five and ten percent levels of probability respectively.
3. [A] The transaction cost variable was determined by Principal Component Analysis (Table 3).
4. [B] The technology variable was determined by Principal Component Analysis (Table 5).

Forward linkages are better established by larger enterprises through their use of traders to "export" produce to urban markets (Table 6); *i.e.* only 31% of larger enterprises do not participate in urban markets compared to 85% for small enterprises. All bird purchases by small and larger enterprises were made from commercial farms/breeders resulting in almost no localised backward growth linkages in respect of bird purchases other than retail "mark-ups". Similarly, most feed is "imported" from large commercial suppliers resulting in a growth leakage, but larger enterprises appear to have more potential to grow their own poultry feed, although this practice is uncommon (*i.e.* adoption of only 1%).

The majority of small (93%) and larger (62%) enterprises constructed their own poultry houses using local inputs indicating that small enterprises have greater potential to establish backward growth linkages. Other equipment appears to have limited backward growth linkages for both small and larger producers as the majority is purchased or "imported" from commercial suppliers. Possible reasons why such equipment was not manufactured locally include an inability to market the products effectively (*i.e.* transaction costs are high, inability to capture size economies and pricing difficulties) and limited knowledge of the equipment required. Although technology adoption is significantly higher amongst larger producers sophisticated equipment is not necessary where scales of production are small and "family" labour readily available.

3.6 Sustaining economic growth

Consumption patterns change across the income spectrum with respect to tradability and intensity of commodities consumed. Poor people tend to spend a large share of both income and increments to income on basic starchy staples (Haggblade *et al*, 1989). These are termed wage goods if they account for a large share of consumer expenditure in the specified trading zone (Delgado *et al*, 1998). Such goods are often produced locally, in most cases are labour intensive and non-tradable in nature, usually because of their bulkiness and high transport costs relative to final value.

If the price of wage goods increase there will be upward pressure on wages relative to output prices of the tradable goods. This leads to less competitive tradable production and fewer opportunities for growth linkages. Conversely, if the supply of a tradable product increases, the demand for non-tradable inputs increases, which should draw under-utilised resources into production and stimulate potential growth multipliers. Factors that shift the supply curve of non-tradable goods to the right (*e.g.* lower transaction costs) can be expected to shift the supply curve of tradables in the same direction by lowering the costs of non-tradable inputs used in the production of tradable products (Delgado *et al*, 1998).

Incremental local income spent on goods imported to a region (*e.g.* basic poultry equipment) does not add any additional income to the area but in fact constitutes an opportunity cost leakage from the growth multiplier. Another opportunity cost leakage results when growth stimulating inputs (*e.g.* basic poultry equipment manufactured locally) that are not in surplus are exported (Hazell, 1984; cited by Delgado *et al*, 1998). Rural economic growth can also be subdued by savings, which constitute a leakage if reinvestment in the poultry enterprise or other local activities does not occur within the defined trading zone. Similarly, loan repayments constitute a growth leakage, although credit is nevertheless an important element in initiating and maintaining economic growth (Barry *et al*, 1988:332).

A static growth linkage flow chart is presented in Figure 1, which summarises the "cash" and resource flows for small-scale poultry producers in the rural areas of KwaZulu-Natal. The initial economic growth impetus is provided by the "export" of poultry products from the localised rural economy.

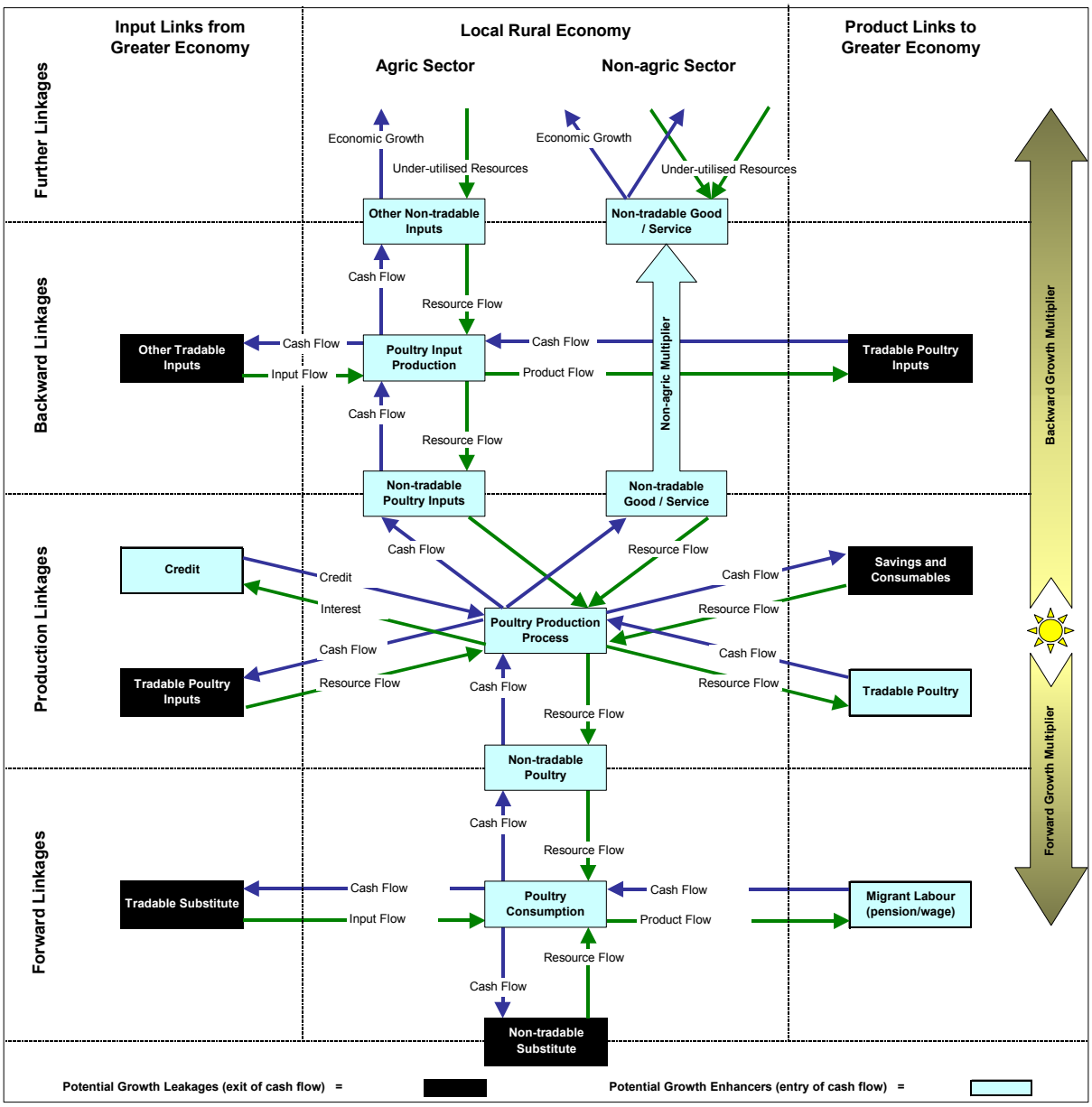

Figure 1: Growth linkage flow chart for rural poultry producers in KwaZulu-Natal

3.7 Institutional arrangements

Delgado (1999) maintains that vertical integration of small enterprises with processors and marketers is a promising avenue for sustained growth because this should reduce transaction costs associated with access to information and assets that limit the substitution of resources between enterprises. Such integration is within reach of small enterprises through contract farming schemes with larger commercial farmers, processors and marketing agents. However, to be successful it is important that a representative institution (*e.g.* a private company) is established that aspires to good governance and fair representation of its members or shareholders (*i.e.* the collective group of

small poultry enterprises). Its focus should be to capture size economies through improved access to assets, information and services rather than attempting to organise farms completely or change production patterns. Delgado (1999) considers this a more politically acceptable and sustainable option than an economy relying mostly on large commercial farmers.

To be successful the vertical integration of small enterprises requires robust institutional arrangements comprising a combination of informal or customary constraints, formal legal rules (*e.g.* the constitutional rules of the business entity) and the enforcement characteristics of both (Furubotn & Richter, 1991:3). Common institutional types or business entities used in South Africa include public and private companies, trusts, closed corporations, co-operatives, and in the case of commercial poultry enterprises in KwaZulu-Natal, informal associations whose members contribute to a joint venture. Table 7 shows that the adoption of informal associations is low amongst small and larger enterprises and that there is no significant difference in adoption between them.

Table 7: Univariate differences between small and larger poultry enterprises for institutional variables in KwaZulu-Natal, 1999

Institutional Variables	Small Enterprise		Larger Enterprise		T
	N	Mean	N	Mean	
Informal association	61	0.23	62	0.16	0.949
Company	61	0.00	62	0.16	**3.425*****

Notes: 1. Equal variances not assumed and one tailed t-test used.
2. ***, **, * significant at the one, five and ten percent levels of probability respectively.

To attract investment from its members, or finance from lenders, any business entity should act decisively in response to changes in the economic environment (Nieuwoudt, 1990). This is more likely when management teams are small and accountable for their decisions (Wynne & Lyne, 1995). Accountability requires an institution that; (1) creates incentives for complying and disincentives for breaking institutional rules (*e.g.* performance based remuneration packages); (2) promotes transparency (*e.g.* externally audited financial statements); and (3) provides an opportunity for corporate members to express anxiety through disinvestment (*e.g.* to exit the institution through the sale of shares) and/or sanction (*i.e.* vote) against management. Both benefit and voting rights should be allocated in proportion to individual member investments, where benefit rights should be transferable at the market or audited price. This removes "horizon" and "portfolio" problems (Cook & Iliopoulos, 2000:336) because members can realise their share of capital gains generated by prudent long term investments at any time, and larger investors are not forced to accept conservative portfolios preferred by smaller, risk-averse investors. In this way, the free- and forced-rider problems

associated with collective investment are minimised. Public and private companies satisfy these criteria, and are generally the preferred business entities as they also attract equity and debt capital (Wynne & Lyne, 2002). In part, this is because shareholders and lenders are assured that key provisions for "good" governance are entrenched in law. In Table 7 only 16% of larger enterprises in the survey adopted company structures with a dearth of formal institutions amongst small enterprises.

To facilitate the vertical integration of small enterprises and the adoption of company structures Figure 2 illustrates some possible associations available to small-scale poultry producers within the supply chain (numbers of entities are illustrative only). The establishment of these collective institutions should increase procurement, marketing and bargaining power, reduce transaction costs and help capture size economy benefits. In practice, these associations are expected to be dynamic. Therefore, it is important that individual members of and the institution itself can adapt to constantly changing circumstances, which requires a transparent and equitable entry and exit procedure for members (Knight & Lyne, 2002). In practice, the establishment of such institutions is constrained by the prohibitively high transaction costs associated with small-scale producers (Table 6). Consequently, there is justification for the state to bear some of these transaction costs.

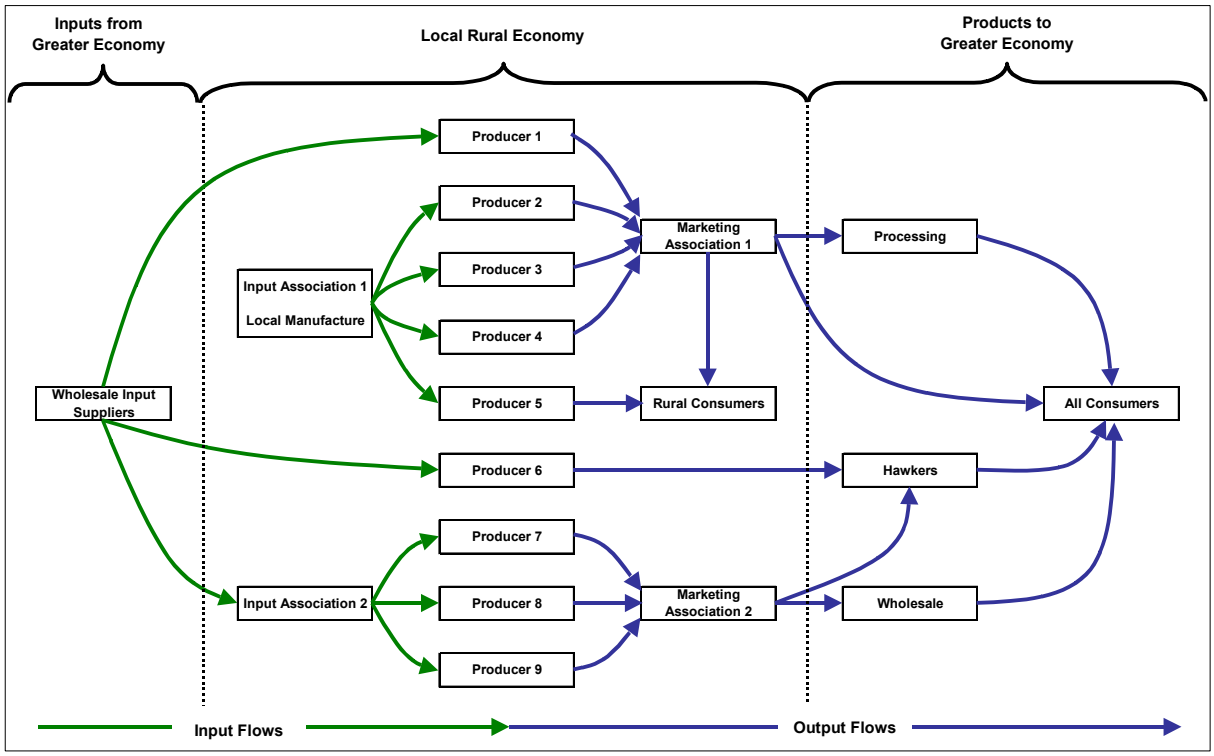

Figure 2: Supply chain flow chart for rural poultry producers in KwaZulu-Natal

4. POLICY IMPLICATIONS

This study confirms that small-scale commercial poultry production has the potential to initiate economic growth through the "export" of its products, and to draw under-utilised resources such as labour into production. The impact of the subsequent multiplier effect is most likely strongest in the non-tradable, non-agricultural sector. Alleviating growth constraints for a large number of small enterprises is expected to impact more positively on rural economic growth than if a few larger enterprises are encouraged to become bigger. The descriptive results suggest that small producers face much higher transaction costs than larger producers.

To make the supply of tradables like poultry products more price elastic and so nurture economic growth in the rural areas of KwaZulu-Natal, government policies should focus on absorbing some of the transaction costs in inherently resource poor communities; *i.e.* by improving education, physical infrastructure (public transport and communications) and technology transfer through extension. This broad intervention should improve information and product flows into and out of rural communities, which should facilitate the establishment of rural enterprises that produce an abundance of tradable products such as poultry. Other important interventions include the provision of mentoring and training services for new managers including institution (*e.g.* company set-up and collective marketing options), legal and financial management instruction. The resultant economic growth is expected to increase employment levels in these rural areas, which should raise income levels and hopefully will provide an avenue to exit the poverty cycle.

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