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AN ANALYSIS OF THE CABBAGE, ONION, POTATO, AND TOMATO MARKET STRUCTURE IN ARUMERU DISTRICT IN TANZANIA

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ABSTRACT

Monthly retail market prices for cabbage, onions, potatoes and tomatoes reported by the Tanzanian Ministry of Agriculture for the City of Arusha were analyzed. The analysis indicates that tomato prices are generally the highest followed by onion, potato, and cabbage prices. Significant seasonal variation was found for tomato, onion and cabbage prices but in contrast, potato prices show no significant seasonal variation. The high price months are May or June and these months correspond to the end of the long rainy season. The last three months of the year are the low price months and these months correspond to the beginning of the short rainy season. Contrary to prices found in developed markets, the highest relative variability in prices occurs during low price months.

Evidence of a structural change in the price series for cabbage, onions and potatoes was found (the tomato series was too short to test for a structural change). The change took place between the latter months of 1988 and the early months of 1989 and possible factors responsible for the change were postulated. The change was more pronounced for cabbage and potatoes.

The market structure identified through a survey instrument administered to market participants during the summer of 1992 revealed variations across vegetables, participants, and price levels. The differences were primarily found at the producer/ trucker and trucker/wholesaler levels. Producers captured relative large shares of consumer expenditures on the vegetables. In the cabbage market, retailers captured the largest consumer expenditure share and the share was invariant relative to price levels. In the onion and potato markets, producers captured the largest share and the shares were also invariant relative to price levels. In the tomato market, producers captured the largest share during low price months.

INTRODUCTION

The economy of Tanzania is dependent on the agricultural sector, accounting for nearly 47% of GDP in 1989.

Agricultural exports — primarily cashews, coffee, cotton, pyrethrum and tobacco — represent 60% of total export earnings.

The agricultural sector primarily relies on relatively small producers who generate nearly 75% of export earnings and produce 85% of the five crops listed above (Feldman, *et al.*, 1994). Nearly 80% of the population is supported by the agricultural sector (Bukuku, 1993). Though most individuals in Tanzania still consume relatively small amounts of vegetables, roughly 9% of the 1.165 kgs of daily per capita intake of food, vegetable production and consumption is increasing (TUR, 1980). One constraint in the expansion of vegetable consumption is the relative cost of vegetables and the relatively large share of the household budget allocated to food consumption — 65% and 70% in urban and rural areas, respectively (Amani *et al.*, 1989). Another more important constraint is the risk inherent in perishable product markets, particularly in areas where producers are not accustomed to operating in price discovery markets.

An important aspect of perishable product markets is the relative inefficiency of the markets throughout the 52 weeks in the year. A common measure of market efficiency is output per unit input and in this case it can be constructed to represent the cost of bringing a perishable product from producer to consumer. As input costs increase — production costs and market channel margins — then the output, product delivered to consumer, should increase to maintain the same level of efficiency. Unfortunately, perishable product markets generally lose significant volumes as the products move along the market channel and therefore "output" does not increase even though marketing margins are increasing to compensate for the loss of product as it moves through the market channel. Another aspect of perishable product markets is the temporal volatility of market prices. The price volatility generally benefits the market "middleman" — for consumers pay more for products, but producers capture a relatively smaller share of consumer expenditures on the products. Third, as is common in most underdeveloped countries, the transportation infrastructure by definition is underdeveloped and therefore the cost of transportation is the largest component of the delivered cost to the consumer. Therefore an understanding of prices and marketing margins along the channel is crucial to the understanding of the markets as well as serving as a basis for evaluating market (in) efficiencies.

Arumeru district in Northeastern Tanzania is an important commercial vegetable growing area and current government policy will likely promote further development of the sub-sector. Indeed, recent studies and policy changes indicate a need for more vegetable market research in Tanzania, particularly in this region (Feldman *et al.*, 1994 and AVRDC, 1990). Feldman's study identified cabbage, onions, potatoes, and tomatoes as important vegetables produced in the Arumeru district.

The objectives of this study are to concentrate on the cabbage, onion, potato, and tomato markets and:

1) To collect primarily price data from market participants in the Arumeru district and to analyze secondary price data reported by the Tanzanian Ministry of Agriculture.

2) To estimate the seasonal aspect of prices.

3) To compute and analyze the marketing margins in the channels.

4) To compute the consumer expenditure share captured by market participants.

5) To make recommendations regarding government intervention policy to promote market efficiencies.

METHODOLOGY

Arumeru district lies within the Arusha region of Tanzania and has a population of 320,500 with a surface area of 2,900 square kilometres.

Arusha is a relatively large city catering to the tourist trade in and around Mt Kilimanjaro. The Arumeru district supplies the majority of vegetables to the city. Annual rainfall in the district ranges from 0.5 to 1.5 metres per year and the short rainy season is from November to January while the long rainy season extends from March to June. Within Arumeru district, producers from the same four villages that Feldman *et al.* surveyed were selected for the study areas. The four villages are: Manyire, Oldonyowasi, Oleigeruno, and Uwiro. The number of households in the four villages are: 450, 350, 360 and 338 for Manyire, Oldonyowasi, Oleigeruno and Uwiro respectively. Manyire producers are primarily tomato growers and less than 10% of the households produce potatoes. Growers in Oldonyowasi primarily produce onions and potatoes and less than 10% of households produce tomatoes. More than 50% of households in Oleigeruno produce cabbage, potatoes, and tomatoes, while four-in-ten households produce onions. Growers in Uwiro primarily produce tomatoes and less than 10% of the households produce cabbage or potatoes.

Monthly time-series vegetable price data

These secondary data were obtained from the Marketing Development Bureau of the Ministry of Agriculture and the data are listed in Table 1. The data report monthly vegetable retail prices in the City of Arusha between June 1983 and May 1992 (the tomato series begins in June 1989). Of the 360 total observations, 13 were missing and were graphically interpolated. Mean monthly and annual prices and their coefficients of variation were computed. Simple regression equations — with and without deseasonalized prices — were used to estimate price trends separately and then an equation utilizing monthly "dummy" variables was used to jointly estimate trend and seasonality price behaviour. Graphs of cabbage, onion, and potato prices indicate a "structural" change in the price pattern between the end of 1988 and the beginning of 1989. Therefore, two econometric models were developed to statistically test for a structural price change. The first utilizes a "switching regression" methodology (Braschler, 1983) to identify the month where the structural change took place and the second simply regresses monthly prices on trend and seasonal dummy variables, but over two different time periods — June 1983 to December 1988 and January 1989 to May 1992.

Survey data

A survey instrument was developed, pre-tested, and then administered during the summer of 1992. A stratified random sample of 30 producers and 20 truckers from each village were included in the survey. Of the nine wholesale/retail markets in Arusha, three — Central, Kilombero, and Tengeru — were included in the sample and 20 wholesalers and 30 retailers from each of the three markets were surveyed. The individuals chosen for the survey were selected randomly. The Central market is the largest and best organized of the markets while Tengeru is the smallest, least organized, and is located on the outskirts of Arusha. The Kilombero market falls between the

included in the survey and they were selected randomly at different locations around the city. Therefore, the survey sample size was 380 market participants and 371 provided useful results.

A sampling rate of 10% was the target and initially a sample of 200 was thought to represent the 10%. However, after pre-testing the survey instrument, it became clear that achieving a 10% sampling rate required 380 participants. Also, during the pre-testing, it became very clear that market participants were very reluctant to provide information to enumerators they were not familiar with (a phenomena not different from produce market participants through the world). Therefore, local extension agents, market employees, and Tengeru Research Centre employees were recruited and trained — particularly on how to standardize units of measurement — to serve as survey enumerators. Truckers were interviewed at their homes, but all others were interviewed at their place of work.

RESULTS

Figure 1 illustrates mean monthly retail prices in Arusha between June 1989 and May 1992. Of the four vegetable prices, tomato prices are the highest during the first half of the year while onion prices are the highest during the second half of the year. Cabbage prices are always the lowest while potato prices are the most stable throughout the year. April, May, and June are the high price months (exception is December for potatoes) and October and November are the low price months. Based on the coefficient of variation (c.v.) of the monthly prices, the mean monthly c.v. was 0.35 for onions, 0.30 for potatoes, 0.28 for cabbage, and 0.24 for tomatoes. The largest c.v.'s for cabbage were during December, January, and February averaging 0.38 for the three months; for onions the largest c.v.'s were during August, November and December averaging 0.48; for potatoes the corresponding months are November, December, and January with an average c.v. of 0.42; and August, September, and December are the comparable months for the tomato price with a c.v. of 0.45. Therefore, December is one of the "riskiest" price months for all four vegetables while August, November, and January are the riskiest months for at least two of the vegetables. Overall, the magnitude of the c.v.'s is relatively low compared to produce markets in developed countries, but contrary to developed markets the highest c.v.'s are found during relatively low price months. Conversely, the high price months are relatively less risky.

Econometric results
Annual price patterns (Table 1) indicate that cabbage, onions, and potato prices increased by 762%, 744% and 1,025% respectively between 1983 and 1992. Tomato prices more than doubled between 1989 and 1992. Interestingly, the mean annual c.v.'s generally declined over the ten year period, indicating an increase in the markets' ability to transmit price information.

The econometric results are consistent with the graphical and computations inferences. All three models used to estimate price trends yield quite similar results. The one exception is the tomato market where statistical evidence suggests that the seasonal aspects of the price pattern are very important. The estimated monthly price trend coefficients are: 0.72, 1.07, 0.86, and 1.03 shillings per kg for cabbage, onions, potatoes,

dummy variables yield results suggesting that potato prices are not seasonal, while tomato prices were significantly lower than those in May during all months except April. Monthly potato prices deviated by 8 shillings per kg, but tomato prices deviated by 70 shillings. Prices for cabbage were statistically different from the peak (June) prices during September, October, and November while February, March, August, September, October, November and December onion prices were significantly below the May peak. The R^2 for the regression estimates are in the mid to high 0.7's range.

Evidence for structural change was found for all three vegetables (tomato prices are not included because the price series began in 1989) price series. The switching equation results indicate that a structural change occurred for cabbage between 1988 and January 1989; for onions between March 1989 and April 1989; and for potatoes between November 1988 and December 1988. The above results were used to segment the data and then a price trend equation was estimated for each of the two time periods. A Chow test (Kennedy, 1985) was performed to test the hypothesis of whether the parameter estimates of the two equations are different. For all three vegetables the test indicates that the parameter estimates are different between a pair of equations. In addition, the trend parameter estimates for each pair of the vegetable price equations are significantly different: 0.25 for the pre-January 1989 equation vs. 1.43 shillings per month per kg for the post-January 1989 equations for cabbage prices; 0.44 for the pre-March 1989 vs. 1.45 for the post-march 1989 equations for onions; and 0.3 for the pre-December 1988 vs 1.8 for the post-December 1988 equations for potatoes. The change in the magnitude of the parameter estimated in the onion market is nearly

Figure 1: Mean monthly retail prices for selected vegetables in Arusha, Tanzania June 1989–May 1992
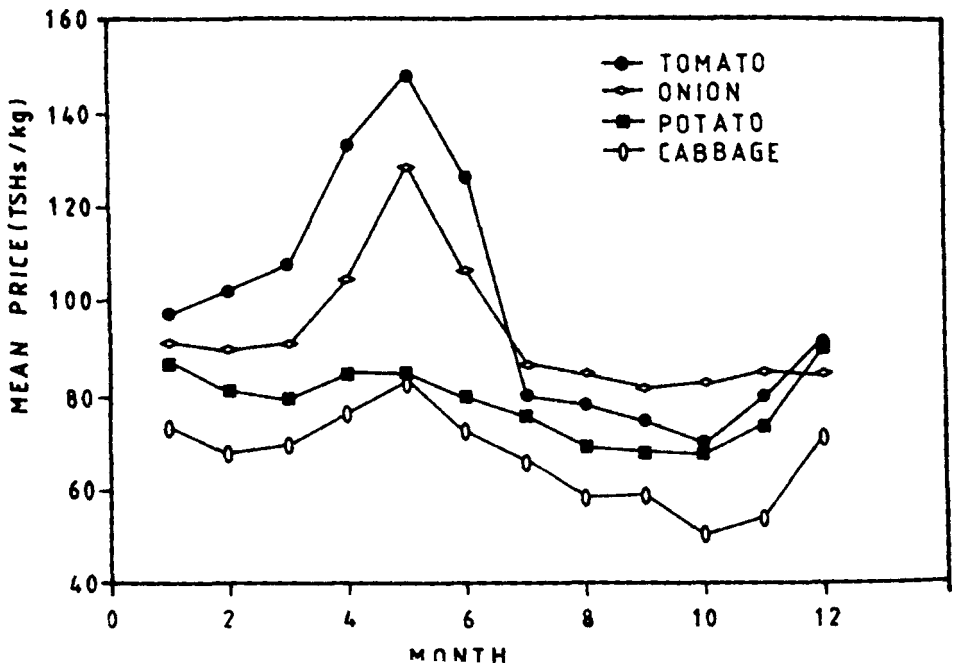
Table 1: Time series for vegetable retail prices in Arusha, June 1982–May 1992 (in TShs. per Kg.)

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Cabbage												
1983						11.0	11.8	10.5	9.0	10.3	13.8	12.5
1984	11.0	12.5	13.0	12.3	11.0	14.3	15.5	17.5	17.5	17.5	13.5	15.0
1985	11.8	20.0	21.8	23.3	22.5	30.0	16.3	13.0	15.0	18.3	12.5	15.5
1986	14.3	13.5	16.8	15.5	17.5	20.8	18.0	17.5	17.5	17.5	17.5	11.0
1987	13.5	17.0	22.5	17.5	28.8	26.3	32.5	27.5	23.8	23.8	23.8	25.0
1988	30.0	35.0	28.8	25.0	27.5	27.5	25.0	25.0	13.8	25.0	25.0	23.8
1989	30.0	35.0	35.0	45.0	45.0	47.5	45.0	46.3	45.0	42.5	42.5	41.3
1990	41.3	45.0	50.0	55.0	55.0	90.0	80.0	75.0	70.0	55.0	55.0	85.0
1991	75.0	70.0	70.0	85.0	85.0	80.0	75.0	55.0	62.5	55.0	65.5	90.0
1992	105.0	90.0	90.0	90.0	110.0							
Onion												
1983						20.0	16.5	11.0	10.8	10.0	9.0	9.0
1984	9.0	10.0	9.5	17.5	22.5	17.5	17.5	14.3	11.8	15.3	11.0	12.3
1985	14.3	13.5	17.0	13.0	27.5	16.5	12.3	12.3	15.5	15.0	12.3	17.5
1986	17.5	18.3	20.0	26.3	23.8	28.8	22.5	22.5	17.5	22.5	20.8	17.5
1987	17.5	20.0	32.5	17.5	31.3	27.5	22.5	32.5	30.0	28.8	32.5	31.3
1988	35.0	40.0	40.0	42.5	47.5	47.5	40.0	26.3	25.0	25.0	30.0	35.0
1989	45.0	45.0	45.0	65.0	77.5	95.0	75.0	50.0	55.0	51.3	46.3	45.0
1990	52.5	53.0	54.0	55.0	127	95.0	95.0	135.0	110.0	110.0	120.0	120.0
1991	127.0	122.0	110.0	150.0	150.0	130.0	90.0	70.0	80.0	87.5	90.0	90.0
1992	95.0	95.0	110.0	110.0	110.0							
Potato												
1983						11.0	9.0	9.3	8.8	9.0	10.0	12.0
1984	10.0	14.8	9.5	14.0	17.0	21.8	20.0	15.5	10.8	12.5	13.5	19.0
1985	22.5	13.5	18.3	13.5	15.0	14.3	13.8	12.3	12.3	15.0	11.8	17.5
1986	20.0	17.5	15.5	21.3	20.0	17.5	20.0	17.5	17.5	20.0	22.5	17.5
1987	22.5	22.5	23.0	20.0	23.8	20.0	25.0	23.8	23.8	23.8	21.3	20.8
1988	28.0	35.0	33.8	35.0	35.0	35.0	27.5	21.3	25.0	25.0	25.0	38.8
1989	37.5	37.7	37.5	45.0	45.7	65.0	60.0	45.0	50.0	51.3	46.3	46.3
1990	52.5	53.0	54.0	55.0	55.0	90.0	92.5	87.5	75.0	72.5	75.0	90.0
1991	90.0	80.0	80.0	90.0	90.0	85.0	75.0	75.0	80.0	80.0	100.0	135.0
1992	120.0	111.0	105.0	110.0	110.0							
Tomato												
1989						115.0	87.5	52.5	55.0	55.0	50.0	45.0
1990	72.5	80.0	90.0	110.0	150.0	135.0	72.5	122	110.0	80.0	80.0	120.0
1991	110.0	117.0	112.0	150.0	150.0	130.0	80.0	60.0	60.0	75.0	110.0	110.0
1992	110.0	110.0	122.0	140.0	145.0							

half the change in the cabbage and potato markets and this result supports the notion that the price of staples such as cabbage and potatoes were not allowed, through controls, to increase very much prior to 1989. Alternatively, the onion market had relatively lower levels of government intervention and therefore prices increased relatively more. Also, the equation that utilizes the full time series and incorporates a dummy variable for the period prior to the structural change yielded the following estimates for the pre-structural change time period: -21.3, -37.6 and -13.0 shillings per kg for cabbage, onions and potato prices, respectively. These results suggest that onions were significantly undervalued, by 21.3 shillings, relative to post 1989 prices. Some possible and/or plausible factors responsible for the structural price change include:

    a)   currency devaluations which took place during the latter part of the 80s;
    b)   reductions in subsidies for production inputs;
    c)   increased taxes on gasoline and diesel; and
    d)   a change in how the data itself was generated.

Results from the survey instrument

The market participants interviewed present a good picture of the structure and performance of the produce markets in Arumeru district and the City of Arusha specifically. Producers primarily sell their product to truckers, either at their farm or at rural assembly areas. Truckers, using either lorries or pick-ups, sell to wholesalers, retailers, hawkers and occasionally consumers. Truckers also transport people along with the produce making it difficult to impute charges to produce transportation alone. All loading and unloading is done manually and the packaging materials as well as the units of measurements vary significantly. Wholesalers sell to retailers and hawkers, but many wholesalers also own retail outlets either adjacent to or as part of the wholesale store(s). With the exception of the Central market, no markets have storage facilities and product is mostly stored/displayed on raised stacks on the ground.

Tomatoes and onions are handled by 61% of all market participants (excluding consumers), but only 43% handle cabbage and potatoes, indicating a residual effect from government controlled markets and more competition in the highest priced vegetable markets. Table 2 shows the distribution of buyers from each of the participants in the market channel. For example, cabbage producers sell 51% of their cabbage to truckers whereas they only sell 14% to wholesalers. The potato market is the most distinct of the markets because producers and truckers sell to potato handling distributors that sell directly to consumers and/or retailers. The figures in Table 2 clearly indicate that market structure differs across vegetable markets — nearly 230 participants in the onion and tomato markets, but only 160 in the cabbage and potato markets. Also, market structure differences are concentrated at the producer/trucker and trucker/wholesaler levels. Clearly, the onion and tomato markets are different than the cabbage and potato markets.

Table 3 presents the distribution of consumer expenditures, in shillings per kg, on the four vegetables by market participant (i.e. of the 52.7 cents per kg spent by the consumer during July 1992 on cabbage, the producer received 17 cents or 32.2% of the consumer's shilling). The price distribution is presented for July 1992 prices and for the high (max) and low (min) price month between June 1989 and May 1992. The

Table 2: Market participant and buyers from market participants in Arusha, Tanzania

Market Participant and Type of Buyers From Participants	Vegetable Market and Number of Buyers in Market							
	Cabbage		Onions		Potatoes		Tomatoes	
	No.	%	No.	%	No.	%	No.	%
I.) Producers								
— Wholesaler	7	14%	14	18%	—	---	16	24%
— Trucker	26	51%	51	64%	15	31%	34	50%
— Retailer	1	2%	1	1%	—	—	4	6%
— Hawker	2	4%	2	3%	—	—	3	4%
— Consumer	1	2%	2	3%	—	—	3	4%
— Other/NR*	14	27%	10	11%	33	69%	8	12%
— Sub-Totals	51	100%	80	100%	48	100%	68	100%
II.) Truckers								
— Wholesaler	19	86%	26	65%	17	68%	28	67%
— Retailer	—	—	2	5%	—	—	4	10%
— Hawker	—	—	2	5%	—	—	2	5%
— Other/NR*	3	14%	10	25%	8	32%	8	18%
— Sub-Totals	22	100%	40	100%	25	100%	42	100%
III.) Wholesalers								
— Retailer	9	50%	7	50%	12	55%	14	54%
— Hawker	8	44%	2	29%	9	41%	10	39%
— Other/NR*	1	6%	3	22%	1	4%	2	7%
— Sub-Totals	18	100%	12	100%	22	100%	26	100%
IV.) Retailers								
— Consumer	51	94%	62	94%	47	90%	57	93%
— Other/NR*	2	6%	4	6%	5	10%	4	7%
— Sub-Totals	53	100%	66	100%	52	100%	61	100%
V.) Hawkers								
— Consumer	10	91%	29	100%	15	83%	27	100%
— Other/NR*	1	9%	—	—	3	17%	—	—
— Sub-Totals	11	100%	29	100%	18	100%	27	100%
TOTALS	156	42%**	229	62%	165	45%	226	61%

*—The other category includes buyers that are not specialized and NR means no response.
**—Percentage of the total sample size of 371.

producer captures a significant share of the consumer shilling and this outcome is relatively invariant with respect to high or low market prices. The exception is the tomato market where the producer captures 71% of the consumer shilling during a high price month, but only 33.4% during the low price months. These results are contrary to published findings, regarding the marketing of horticultural products in Tanzania (Ashimogo and Lazaro, 1989 and Mlambiti, 1975). Another interesting outcome is how the shares change (they do not change for cabbage at the retail level) between high and low price months across market participants. Retailers obtain the

high price months. The opposite is true for onions. Conversely, wholesaler shares are fairly constant in the tomato market; relatively high in the potato market during the high price months, but relatively low during the high price month in the onion market. In short, the markets operate differently across commodities, across market participants, and across price structure.

Table 3: Market participant shares of consumer shilling in a market channel in Arusha, Tanzania.

| Market Participant | Price TShs./kg. on which shares are based | | | | | |
| | Current | | Maximum | | Minimum | |
	Price	Percent	Price	Percent	Price	Percent
Cabbage						
Producer Price	17.0	32.2%	39.0	41.6%	11.3	36.2%
Trucker GM**	0.9	0.7	13.1	14.0	3.2	10.3
Wholesaler	10.2	19.4	−0.3	−0.3	1.8	5.7
Retailer	24.6	46.7	41.9	44.7	15.0	47.9
Totals	52.7	100%	93.7	100%	31.3	100%
Onions						
Producer Price	41.9	48.5	65.3	50.3	22.1	38.6
Trucker GM	10.9	12.6	27.5	21.2	9.2	16.1
Wholesaler	25.5	29.5	2.7	2.1	15.2	26.5
Retailer	8.1	9.4	34.3	26.4	10.8	18.9
Totals	86.4	100%	129.7	100%	52.2	100%
Potatoes						
Producer Price	38.5	51.6	48.5	44.3	28.4	47.5
Trucker GM	12.3	16.5	32.7	29.9	12.5	20.9
Wholesaler	11.9	15.9	27.0	24.6	2.7	4.5
Retailer	12.1	16.1	1.4	1.2	16.2	27.1
Totals	74.7	100%	109.5	100%	59.9	100%
Tomatoes						
Producer Price	45.6	51.9	116.7	71.7	19.6	33.4
Trucker GM	0.4	0.4	38.8	23.9	11.9	20.3
Wholesaler	2.5	2.9	5.6	3.5	2.7	4.6
Retailer	39.4	44.8	1.7	1.0	24.5	41.7
Totals	87.9	100%	162.8	100%	58.8	100%

Shares based on: a.) current July, 1992 prices; b.) maximum prices obtained in the market; and c.) minimum prices obtained in the market.
**Gross margin*

DISCUSSION AND RECOMMENDATIONS

Evidence of market inefficiencies can be inferred from price variations, high relative variability during low price months and low variability during high price months. Also, the variability and inconsistency of consumer expenditure shares captured by

include the development of transportation, particularly as it applied to perishable product markets. Also, policies promoting the standardization of packs and/or containers will contribute to greater market efficiency by reducing uncertainty and encouraging market discipline. Allocating more public resources to market research would identify critical areas where "bottlenecks" are occurring or may develop. Finally, the collection, compiling and broad dissemination of market prices at all levels of the marketing channel will reduce price fluctuations and thereby reduce price risk.

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REFERENCES

AMANI, H.K.R., KAPUNDA, S.M., LIPUMBA, N.H.I. AND NDULU, B.J., 1989. "Impact of Market Liberalization on Household Food Security in Tanzania". *In* Household and National Food Security in Southern Africa. Proceedings of the Fourth Annual Conference on Food Security Research in Southern Africa, Oct. 31–Nov. 3. 1988. University of Zimbabwe/Michigan State University Food Security Research Project, Department of Economics and Extension, Harare.

ASHIMOGO, G.C. AND LAZARO, E.A., 1989. "Vegetable Marketing in Mgeta, Morogoro District". Franco-Tanzania Horticulture, Morogoro Development Project. Sokoine University of Agriculture, Morogoro.

ASIAN VEGETABLE DEVELOPMENT RESEARCH CENTRE (AVRDC), 1990. Vegetable Research and Development in SADCC Countries. Proceedings of the Workshop held in Arusha, Tanzania, July 1990. AVRDC Publication No 90–328, Tainan.

BRASCHLER, C., 1983. "The Changing Demand Structure for Pork and Beef in the 1970s: Implications for the 1980s". *Southern Journal of Agricultural Economics,* No. 15.

BUKUKU, E.S., 1993. *The Tanzanian Economy.* Published by Income Distribution and Economic Growth, Westport, CT, USA.

FELDMAN, S., MINJA, R., AND WIEN, C. 1994. *Vegetable Production in Tanzania: A Four Village Case Study in Arumeru District,* Department of Fruit and Vegetable Sciences, Cornell University.

KENNEDY, P., 1985. *A Guide to Econometrics,* 2nd Ed. The MIT Press, Cambridge MA.

MLAMBITI, M. 1975 "Structural Patterns in the Marketing of Selected Fruits and Vegetables in Morogoro District: The Place of Cooperative Marketing", Department of Rural Economy and Extension. Faculty of Agriculture, University of Dar es Salaam.

TANZANIA, UNITED REPUBLIC OF (TUR), 1980. Tanzania National Food Strategy, Ministry of Agriculture, Dar es Salaam, Tanzania.

Institute of
Development Studies