Making the Most of It:
A Regional Multiplier Approach to Estimating the Impact of
Cash Transfers on the Market

Concern Worldwide (Malawi)

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Acknowledgements

Abbreviations

ADMARC	Agricultural Development and Marketing Corporation
CWW	Concern Worldwide
DECT	Dowa Emergency Cash Transfer
EPA	Extension Planning Area
FACT	Food and Cash Transfer
FDI	Foreign Direct Investment
FEWSNET	Famine Early Warning System Network
GoM	Government of Malawi
IHS	Integrated Household Survey
M&E	Monitoring and Evaluation
MK	Malawi Kwacha
MoAFS	Ministry of Agriculture and Food Security,
PTM	Post-Transfer Monitoring
RSAM	Reduced Social Accounting Matrix
SAM	Social Accounting Matrix
TA	Traditional Authority

Summary

This report uses qualitative and quantitative methods to help understand the market impact of CWW's emergency cash transfer programme in northern Dowa District, Malawi known as the DECT programme. The programme was undertaken during the 2006/07 "hungry season" from December 2006 to April 2007 as a response to crop failure resulting from poor rainfall during the previous cultivation period in the region. It is during this time of year in which households' maize stocks are depleted with the shortages being particularly acute following drought. Although this programme lasts 5 months, this study was carried out in February 2007 and focuses on the impacts in January 2007. Continuous monitoring and evaluation is however undertaken by the CWW's own M&E team.

The DECT programme builds on the experience of a similar programme carried out during the 2005/06 hungry season in which both food and cash were distributed to beneficiaries.

The principal aim of the programme is to permit households to meet their "food entitlement" by giving them the purchasing power sufficient to buy the necessary maize from markets, traders or farmers with stocks. With this aim in mind, CWW distributed nearly MK14m to 8,384 beneficiaries in December 2006 and MK17m to 10,161 beneficiaries in January 2007. This represents over 60% of the total population in the area.

Such an intervention will have both social and economic impacts outside of the principal aim of the programme. This report contributes to understanding the economic impact of the DECT programme.

A literature review and a review of the findings from to 2005/06 FACT programme helps to put the DECT programme in perspective with a specific focus on the multiplier. The literature review reveals that outside interventions can lead to regional multipliers estimated to be between 1.2 and 5 depending upon the intervention, the size of the region and other circumstances.

The review of findings from the FACT programme helps to understand how beneficiaries are likely to use their money which acts as a starting base from which the flow of money around the local economy can be analysed and the multiplier estimated. Since any significant injection of cash into a small local economy is likely to have an impact on prices, the review helps to understand the longer run price adjustments in the maize market. Maize price fluctuations are thus discussed in a longer run context using basic quantitative information gathered during the two programmes and provided by FEWSNET.

Although not the main aim of this report, there is some evidence that supply has been able to respond to increased demand in accessible areas which has minimised any inflationary effects. In more inaccessible areas, the programme may have created additional inflation. Anecdotal evidence suggests that this is partly due to risk aversion on behalf of traders who are unwilling to travel to unknown areas, even with the prospect of high profit. The inflationary pressure created by the project is however difficult to assess since Malawi as a whole had a large maize surplus and government policy prohibits export causing excess supply and a nation-wide price crash in January.

This report uses two methods to estimate the regional multiplier resulting from the DECT Programme with Traditional Authority Chakhaza as the area considered.

Firstly, using beneficiaries' reported spending patterns, secondary beneficiaries were identified and interviewed to ascertain their own spending patterns. This permits the cash injection to be "followed" around the local economy until it is spent elsewhere. Groups which benefit were classified; and spending by each group with all other groups was analysed in matrix form with one group's spending being another group's income. This allows for the creation of a "Reduced" Social Accounting Matrix (RSAM) from which the regional multiplier can be calculated and the total impact for each group estimated after all spending rounds have been completed.

Individuals representing each group were interviewed to obtain quantitative expenditure information and additional qualitative information. Under different assumptions, a regional multiplier of between 2.00 and 2.79 is estimated with beneficiaries' spending being treated as the exogenous stimulus. The lower region of these estimates is favoured as being under more realistic assumptions.

Using data from the 1998 Malawian census, this report goes on estimate the multiplier for TA Chakhaza at 2.11, helping to confirm the multiplier estimate as being in the lower region of the estimates using the RSAM.

The RSAM is also used to estimate the total increase in income for each group resulting from the cash injection. Noting that each group's total gain is estimated and that more individuals are included in some groups than others, local commerce and village traders are significant winners with many people making purchases from these two groups in rural areas with small towns. Smaller farmers gain more than their larger counterparts; an unsurprising result given than smallholders are the backbone of the Malawian economy. Households are also gain (both beneficiaries' and others') since part of the money finds its way back into their pockets in the form of wages, ganyu payments and gifts. Finally, both clinics/hospitals and schools also gain with a part of the money being spent on health and education.

Qualitative evidence indicates that the impact for schools is particularly important and deserves greater attention. The schools interviewed reported improvements in enrolment/drop-out rate as well as fee-paying which was put down almost exclusively to the DECT programme. One school also indicated improvements in students' concentration resulting from being properly fed thanks to DECT.

The longer-run benefits of improved health and education are not analysed in this report. Other longer-run benefits also not examined may result from investment in farm productivity such as fertiliser resulting from the DECT programme and supported by the Government fertiliser subsidy programme.

Anecdotal evidence not quantified in this report suggests that there may be a reduction in unemployment as a result of the programme. It is more likely however that labour market benefits are in the form of reduced underemployment with those already (self-)employed working harder to meet increased demand. Similar anecdotal evidence suggests that there has been not only a demand-side impact on labour but also a supply-side impact. Beneficiaries are less likely to offer their services in the form of ganyu creating problems for larger farmers.

Understanding the impact on the labour market is key to understanding the degree to which the multiplier represents increase production of goods and services resulting from the increased demand. In the short run, increased consumption on aggregate

can only be met through increased work; if no additional employment is created, increased consumption on one person can be met only through another's reduced consumption.

This report gathers qualitative information suggesting that local businesses and traders have strongly positive views regarding the DECT programme. Most recognise the benefit for themselves personally, and are particularly grateful of the demand stimulated and from which their businesses benefit during the most difficult period of the year. Although some reported initial misgivings about the misuse of the cash, there is now general satisfaction with the fact that the transfers tend to go the females and are not abused. Traders in particular noted their preference for cash aid over food aid as it continues to ensure a market for their maize. It also prevents beneficiaries selling maize back to them as reportedly occurs when food aid is given.

Anecdotal evidence collected from businesses regarding spending habits of beneficiaries (who can usually be readily identified) supports the theory that beneficiaries are spending their transfers on worthwhile goods including food; school fees; health etc. Some however indicates that a small amount is spent on "extravagant expenditure" with one bar reporting busy nights on the day of the distribution; this is not however believed to be significant.

Inevitably interviewees discussed several aspects of the programmes and several distributions were witnessed. Indirectly relevant findings regarding the programme including the framing of the changing value of the transfers, communication with maize traders and potential abuses of position as village head are briefly discussed towards the end of the report.

Technical aspects of calculations are presented in the appendices and recommendations are made in final section of the main report.

Introduction

Although Malawi as a whole benefited from a grain surplus during the 2006 harvest season, some districts suffered from bad weather and produced a deficit. Northern Dowa is one such area which produced a deficit leaving many residents with a missing food entitlement.

Cash transfers are increasingly being seen as an alternative to vouchers and in-kind aid. They benefit from lower distribution costs, and quicker response time in emergency situations. In Malawi, Concern Worldwide and Oxfam have run emergency cash transfer programmes while UNICEF/GoM are currently running a pilot cash transfer programme with social security as the principal objective.. GoM plans to roll out such transfers on a national level if its own pilot, taking place in Mchinji on the Zambian border is judged a success.

At a meeting of relevant parties following cash transfer pilots in early 2006, the Forum Briefing and Output Paper pointed out that potential advantages included the avoidance of disincentive effects ("unlike commodities, cash is unlikely to discourage local trade or production") and multiplier effects, although these were not quantified[2].

This study uses a Reduced SAM (RSAM) framework in order to calculate the regional multiplier resulting from Concern's DECT programme. It goes on to use this framework to analyse the impact of the cash transfers on different economic sectors. In particular the links between different groups of traders are used to assess the cumulative benefits for different businesses, helping to highlight the value-added chain in the distribution of agricultural products.

The impact for education and health expenditure and for local commerce including the suppliers of agricultural investment (such as fertiliser) is analysed.

This study looks at the short run impact of the DECT programme and does not consider longer-run benefits which arise from investment in agriculture, education or savings.

It is important to note that the success or otherwise of the project should not be judged solely on the multiplier effect for several reasons. Firstly, a low multiplier in such a programme is one possible outcome since the largest share of the transfers may be spent on food imported from outside the region. Although this represents a leakage in terms of the multiplier, it represents a success in terms of the aims of the project; the region is experiencing a food shortage and the cash transfers allow needy households to continue to purchase food imported from outside of the region. Secondly, during the FACT programme in 2005/06, an average of 6.4% of the money was saved. This also represents a leakage and reduces the multiplier, but encouraging savings can be seen as a success of the project. Saving aids consumption-smoothing, is a source of potential investment, and possibly alters the economic culture in a positive manner with beneficial long-term effects. Savings were highest in the final month of the FACT transfer programme when the harvesting had begun, and supply of food increased. Anecdotal evidence from the DECT project suggests that the Malswitch cards used helped to stimulate an interest in banking as they can be used for savings. Thirdly, an average of 3.4% of transfers was invested in 2005/06. This may represent local expenditure, increasing the multiplier, or

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[2] Cash Transfer Forum Briefing and Output Paper (24/7/06)

spending on imported goods, reducing the regional multiplier effect. In any case, this expenditure should, however, be viewed in a positive light since it is likely to represent either an improvement in the standard of living (if invested in the home), or an improvement in next year's harvest (if invested in livestock, grain, or productivity-increasing tools or changes). Finally, around 2.3% of transfers in 2005/06 fell into the "extravagant expenditure" category. Such expenditure is likely to be almost entirely locally spent in bars or on "womanising", and as such, will increase the regional multiplier[3]. The overall beneficial effects of such uses of transfers is however questionable.

Despite these necessary caveats, the multiplier allows us to quantify the additional economic activity generated within the region. This may be through expenditure on locally-produced investment goods (farming tools or fertiliser for example), or services (education and health accounted for nearly 10% of expenditure in 2005/06), the negatively viewed "extravagant expenditure", or through increased prices being received by local producers of agricultural products. A benefit linked to the multiplier, and sometimes seen as being a proxy for the multiplier, is that of increased employment[4].

Through the multiplier and local linkages, even economic actors which have not been selected to benefit directly from the transfer programme can gain indirectly, through increased employment opportunities, as well as from income via other linkages present within the local economy.

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[3] Devereux et al. (2006)
[4] Frey (1989), Mulligan and Gibson (1984)

Regional Multipliers: A Brief Review of the Literature

Regional multipliers are used to help evaluate the total impact on a region of an exogenously stimulated change in demand. They have been widely used in the UK and the US to help understand the consequences of Government intervention in a region through transfer payments or investment; and to understand the wider economic impact of tourism on a region[5]. Recent trade literature seeks to understand the effect of foreign direct investment (FDI) on the receiving country or region partly through the linkages that are created with local firms (supply side) and workers (demand side)[6]. The recent growth of remittances also lends itself to such analysis.

Although the main aim of the CWW cash transfer programme is to ensure adequate food entitlements for households in the Dowa region, the cash injection will have secondary effects on the regional economy. Experience has shown that the largest part of the money is used for food purchase[7]. The increased demand will cause an increase in price, which should help to attract imports from other regions in Malawi which have seen good harvests. Thus, we are likely to see an impact on prices and supply, with the increase in supply of food intended for the consumption of less well-off households in Dowa being the principle aim of the project. This objective was met with some success during the 2005/06 food and cash transfer project[8].

Although multiplier studies rarely concentrate on developing countries, a web search revealed one study of the impact of a project on income in Malawi, and numerous examples for developed countries.

Giles and Jennings (1982) attempt to establish, through the multiplier, the total national impact of the Viphya Pulp Mill[9] which was to be constructed during the early eighties at the edge of the Viphya plateau, an area already used for the growing of pine trees to make paper for export. Using a simple definition of the multiplier, they use national data to estimate a marginal propensity to save of 0.2, and a marginal propensity to import of 0.14. This produces a multiplier estimate of $k = 1/(s + m) = 2.94$ which is used, with the associated estimates of foreign currency gains to estimate the impact of the mill on the entire Malawian economy (calculated to be an increase in GDP of 1.9% by 1988). Regions within countries can be expected to exhibit higher marginal rates of import (from other regions). Thus, estimates for the Dowa region are likely to be lower than 2.94.

A series of articles appearing in the Oxford Economic Papers in the late 1960s perform estimates for regional multipliers in the UK. Archibald (1967) aims to narrow the plausible range of regional multiplier values for UK regions of a similar relative size to that of Dowa. After a few reasonable assumptions, he narrows this range down to 1.2<k<1.7, much lower than Giles and Jennings' (1982) national estimates for Malawi. These estimates are confirmed by Steele (1969) who uses Ministry of Transport data to estimate regional imports and exports. Steele (1969) goes on to

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[5] Frechtling and Horváth (1999); Steele (1969); Mulligan and Gibson (1984)
[6] Javorcik (2004); Coe and Helpman (1993)
[7] Devereux et al. (2006)
[8] Idem.
[9] The Viphya Pulp Mill was never constructed due to negative impact assessment reports which indicated that the mill would have negative consequences on pollution in Lake Malawi and on fish stocks.

show that including feedback effects has a positive but very small impact on the total multiplier effect[10]. This study does not attempt to measure the feedback effect.

Greig (1971) notes that cash injections into the local economy are not neutral and are likely to spark other changes. In the case of Malawi, a cash injection from CWW may be compensated by a decrease in other transfers, for example from relatives living in Lilongwe, the nearby capital or nearby provincial towns. This is potentially a non-negligible effect in Malawi, where around 20% of households receive gift or remittance income[11] which makes up 6.3% of total household income[12]. Thus the impact on change in regional income could better be written: *ΔY=k(INJECTION less IMPORTED GOODS less OTHER LOSS)*.

Mulligan and Gibson (1984) estimate multipliers for 21 communities in south western United States using and comparing four different indirect methods. In all cases, employment is used to estimate the multiplier. One of the principal indirect methods used by these and other authors is the "minimum requirements" approach which uses non-basic employment in industry *i*, E_{Ni} (employment producing for consumption *inside* the region) as a proxy for regional production and consumption. Total employment in the region E_T is the sum of basic and not basic employment. A version of this method is used in this report to confirm the results found by more detailed analyses.

This method is endorsed by Woller and Parsons (2002) who formulate the estimate non-basic employment as $E_N = a + b\log_{10}POP$ suggesting that a good linear relationship between basic employment in each section and population is achieved by regressing the log to the base ten of the population of the community on basic employment. Using this method, they find a multiplier of 2.24 for the village health bank programme of Project HOPE in Portoveijo, Ecuador.

Moore (1975) uses the minimum requirements approach to estimate multipliers in the United States by city population and minimum employment percentage. He finds multipliers ranging from around 1.25 to almost 5 for large, almost self-sustaining cities. A similar example for a developing country, Nicaragua, is found in Brodsky and Sarfaty (1977). Using the minimum requirements approach, they estimate multipliers of between 1.25 and 1.69 for different municipalities.

Frechtling and Horváth estimate the multiplier effects of tourist in the Washington DC economy using a previously developed regional input-output model. Since some industries, notably services, are less likely to have leakages to other regions, each industry multiplier is estimated separately with estimates between 1.24 and 1.39. These authors also note the importance of the employment-multiplier interaction which is expanded upon in this report.

Estimating the economic impact of peacekeeping in former war-torn countries, Carnahan et al. (2006) use a back-of-the-envelope calculation to apply an income multiplier of 1.5 for local expenditure on peacekeeping activities. This is much lower than the national figure for Malawi estimated by Giles and Jennings (1982). Since peacekeeping expenses, like the DECT programme, can be seen as exogenous to the local economy it is interesting to note some of their other findings. In particular, such expenses have an inflationary impact, but these are mostly localised and do not

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[10] Feedback effects are the benefits to the local economy caused by leakages from other regions' multipliers which themselves arose from leakages in the region of interest.
[11] Davies et al. (2006)
[12] Chipeta and Kachaka (2005)

impact on the broader economy. UN peacekeeping activities generate jobs and the overall economic impact is positive (even aside from the simple fact that peace is a necessary precondition for economic growth). However, the authors do conclude that outside intervention creates a dependency culture where outside agencies become a major component of local economic activity.

Review of Findings from 2005/06 Food and Cash Transfer (FACT) Programme

During the food shortage in 2005/06, Concern intervened in Dowa and two other districts in the Central Region to help ensure 5,050 of the most at-risk households' "food entitlements" were met[13]. In the districts in which the programme operated, Concern covered between 0.48% and 13.92% of the populations depending upon the EPA. The project delivered a mixture of food and cash with each comprising 50% of total aid. Cash was then adjusted in line with the size of the household so that a larger than average-sized household received the same amount of food but more cash than the average-sized household. Cash transfers were also adjusted in line with food prices (since the intended use of the cash was principally for the purchase of food). In February 2006 for example, cash transfers were increased by 14% following an increase in food prices, whilst they were reduced by 41% in April. This decline follows the increase in supply which corresponds with the beginning of the harvesting season[14].

Market Prices

Agricultural prices traditionally rise during this period due to increasing shortage. However, it should be noted that the increased demand resulting from the cash transfers may serve to further increase prices. This risk is likely to be higher in districts in which the coverage is high but the total impact of the programme on prices will depend upon supply response to the increased demand. The Concern market price monitoring system calculated the following prices for basic food stuffs consumed in the region during the programme. Estimates are shown in Table 1.

Table 1: Basic Food Prices

Month (2006)	Market Prices		
	Maize (MK/kg)	Beans (MK/kg)	Cooking Oil (MK/litre)
January	34.17	95.00	319.33
February	50.75	98.33	275.29
March	69.43	120.00	316.43
April	34.00	82.50	295.71

Source: Devereux et al. (2006)

The above prices will incorporate the impact of the cash transfer programme. Since the programme is recent innovation, historical data calculated by FEWSNET will not incorporate such impact.

Devereux et al. (2006) found "no evidence that the FACT project had any impact on commodity prices at either the local or the regional level". Prices at markets in the Southern Region reached higher peaks that those reached in Dowa district. The
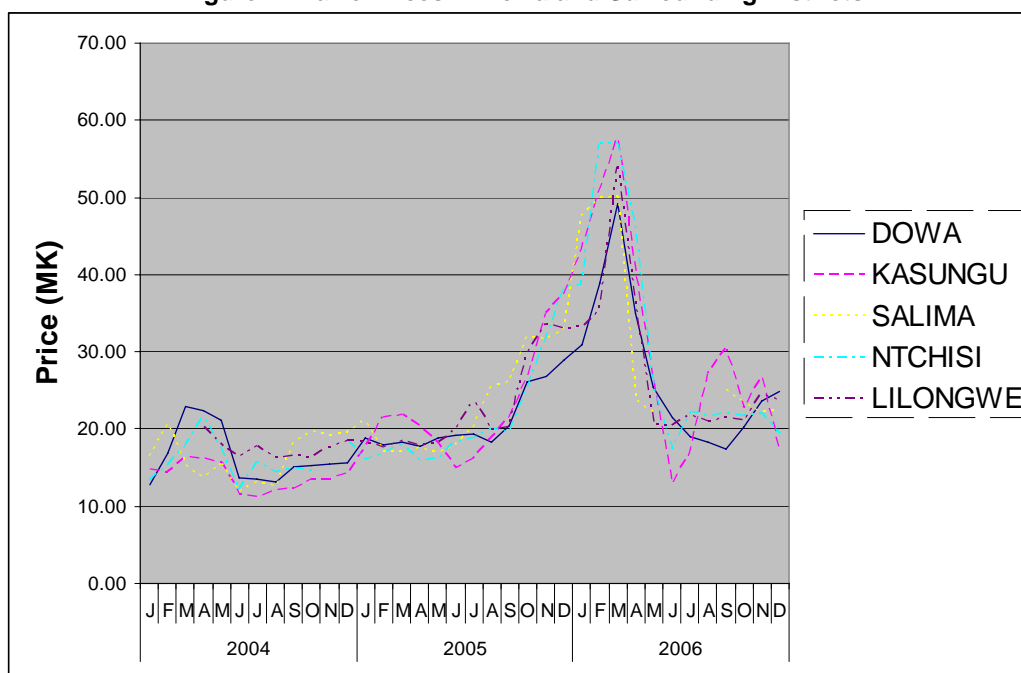
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[13] Sen (1981).
[14] Devereux et al. (2006)

authors conclude that the low number of recipients (0.56% of the population of the central region) meant that the high prices were a reflection of "failures of market supplies, not artificially stimulated demand".

The view of Devereux et al. (2006) is given support by Ministry of Agriculture and Food Security (MoAFS) and Malawi Agriculture Commodity Exchange (MACE) data provided by IDEAA[15]. These data were obtained through the Famine Early Warning Systems Network (FEWSNET) website[16], and are presented in Figure 1.

Figure 1: Maize Prices in Dowa and Surrounding Districts

Source of data: MoAFS through FEWSNET Reports (http://www.fews.net/)

Prices tend to peak around the beginning of the year when food shortages are at their most acute. However, prices were particularly high during the beginning of 2006. The aid programme was a response to a particularly sever food shortage, helping to explain the large price increases. Some of this increase may however have been caused by the artificial demand created by the programme. A comparison between prices in Dowa (where the programme was in operation) and surrounding districts suggest that this is not that case. In all districts prices increase to a higher-than-usual level but Dowa actually sees lower price increases than all bordering districts.

It is interesting to note that prices increased sooner in surrounding districts than in Dowa itself. Brewin et al. (2006) interviewed potential recipients and found that there exists a potential for the transfers to actually help keep grain prices down. Cash transfers would reduce the need for distress selling of livestock which would help to maintain the price livestock. Falling livestock prices is seen by grain traders as a signal of "chronic shortages of grain". They respond by increasing the prices of grain. The absence of such a signal may have helped to keep the prices in Dowa lower than in the neighbouring regions.

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[15] See: http://www.ideaamis.com/
[16] Reports available at: http://www.fews.net/centers/?f=mw

The programme thus exerts pressure on prices in both directions. The final impact will depend on supply elasticities and the psychological impact of reducing the "shortage signal".

Table 2: DECT Potential Impact on Prices

Source of Stimulus	Impact on Prices
Artificially-created Demand	Increase
Reducing Shortage Signal through Maintaining Livestock Prices	Decrease
Stimulating Supply through Increased Demand	Decrease

The risk of price inflation caused by the cash transfers is augmented in 2006/07 however due to the increased number of households targeted (approximately 11,000) and increased targeting with all beneficiaries now situated in only two EPAs with a total population of around 15,700 ensuring around 70% of the total population receive cash aid in a concentrated area[17], the scope for demand pull inflation was high, especially if local conditions make it difficult for supplies to reach the market, responding to the increased demand.

Positive supply elasticities[18] for maize for Malawi and southern Africa (0.26 to 0.45) calculated by other authors suggest however that there is reason to be positive regarding the supply response[19]. Under usual circumstances such supply responses are likely to be delayed in agriculture. However a national surplus combined with an export ban on maize means there is excess supply in Malawi which may assist in supply at least partly meeting the increased demand generated.

Use of Cash Transfers

Devereux et al. (2006) analyse the uses of the cash transfers. Understanding the use of the transfers is critical to evaluating the success of the project – were they spent on food or on "extravagant expenditure"? It is also essential if we are to estimate the likely impact on food and other local prices, as well as demand stimulation of local production – how much of it was spent on imported food? How much was spent on locally-produced goods and services?

Using focus groups and quantitative surveys, Devereux et al. (2006) estimate that most (around 60%) of the cash was used to purchase food. It was also used for other purposes however. In particular, around 10% was used for health and education, and over 8% was either saved or used for loan repayment. Another 2.3% was used for "extravagant spending", and 3.4% was invested – particularly in agriculture. Such investment included fertiliser, hiring ganyu labour to work in their fields or purchasing capital equipment to improve farming productivity.

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[17] Brewin et al. (2006)

[18] Supply elasticities indicate to supply response to higher prices. A positive elasticity indicates that as prices increase, producers respond by increasing supply. For example a supply elasticity of 0.5 means that if prices increase by 10%, supply will increase by 5%.

[19] Kherallah and Govindan (1999); Simler (1997); Food and Agricultural Policy Research Institute, www.fapri.org. Accessed on 19th December, 2006.

Table 3: Spending of FACT Cash

Use of Cash	January	February	March	Mean
Food	63.2%	69.4%	45.3%	59.3%
Groceries (including milling)	17.7%	14.7%	16.4%	16.3%
Health and Education	7.4%	9.1%	12.6%	9.7%
Savings	3.3%	2.7%	13.3%	6.4%
Investment	4.6%	2.2%	3.5%	3.4%
Extravagant Spending	2.1%	0.7%	4.1%	2.3%
Loan Repayment	1.2%	1.0%	3.5%	1.9%
Other	1.7%	1.2%	4.8%	2.6%
Non-food (total)	36.8%	30.6%	54.7%	40.7%

Source: Devereux et al. (2006).

Prices and Spending for DECT Programme

Although prices towards the end of 2006 began to increase, following normal patterns, maize prices crashed in January. This was the result of a good harvest in 2006 on a national level, an export ban preventing surplus maize from being exported, and the anticipation of a good harvest in April which would increase supply above normal levels, further depressing prices.

Prices in the Dowa region were further suppressed by large stocks of maize being held by farmers, who are able to undercut trader prices, selling directly to consumers. Supply has by-and-large responded to the increase demand, although this was met largely by farmers' stocks. There is some indication that, where supply has not responded, prices have increased. In Kachigamba, the least accessible village within the area in which DECT operated, maize prices increased to MK30/kg. It is interesting to note the wide variation in prices in Dowa District reported by FEWSNET. The average price was found to be MK29.25/kg in December at easily accessible Mponela Trading Centre, while maize was trading at just MK20.33/kg in nearby and equally accessible Madisi Trading Centre.

It was observed that Concern played an active role in informing traders of prices in different parts of the region to assist the market in responding with a view to keeping prices down. However, the lack of response to large price differentials such as those witnessed in Dowa as well as anecdotal evidence suggests that traders are highly risk averse and are often not willing to take the risks involved in transporting maize to unfamiliar destinations even if they are nearby and even if the potential profits are large. This increases the risk of inflationary pressure.

Low maize prices meant that DECT beneficiaries were able to use a smaller part of their transfer to purchase maize, and increase their purchase of other goods. Data collected by Concern's Monitoring and Evaluation (M&E) team and anecdotal evidence from wholesalers such as Farmer's World suggested that a larger share is being invested in fertiliser than occurred during the FACT programme. This is further encouraged by the Government fertiliser subsidy programme.

Such investment will improve crop yields, generating longer term benefits not captured by the method used in the report to analyse the market impact. It is recommended that follow-up work be conducted at the end of the project to look at increased fertiliser use this year and improved crop yields.

Spending in the DECT programme follows a similar pattern to that in the FACT programme. Notable exceptions include the limited amount spent on health and education and an increase in fertiliser spending.

Table 4: Percentage of Transfer Spent on Different Goods - DECT

Product	Dec-06	Jan-07
Maize	51.00%	48.89%
Fertiliser	9.00%	4.30%
Saved	5.00%	5.36%
Rice	5.00%	4.53%
Beans/Pulses	4.00%	4.56%
Wheat	4.00%	4.50%
Cassava/Potato	4.00%	4.51%
Debt Repay	3.00%	2.68%
Milling	4.00%	3.99%
Tea/Salt/Other Food	4.00%	2.55%
Medical	3.00%	3.69%
Body Care	2.00%	2.34%
Other	2.00%	5.15%
Education	0.00%	2.95%
(Total food excl. maize)	25.00%	28.14%
	100.00%	100.00%

Source: Adapted from ACG Consultants, "December Transfer Monitoring Report" and DECT PTM Survey – Author's calculations.

Since allowing households to source maize is both the primary purpose of the programme and the main expenditure, the DECT PTM team collects data on source of maize. It is interesting to note that a large percentage of respondents reported purchasing their maize from ADMARC. This is a peculiar story, especially in January, when ADMARC was selling maize for MK30/kg compared with less the MK15/kg in trading centres.

Interviews with beneficiaries for this report confirmed these results, and found three interesting results. One groups of beneficiaries purchase from ADMARC Madisi since the distribution is held in their grounds. They buy their maize and then return directly home deliberately to avoid the temptation of the shops in the trading centre. They know they are paying above the odds for maize. A second group purchase from ADMARC out of habit. They are either unaware that there is ample supply in most trading centres and that maize is readily available from traders, or unaware that it is available at around half the price. A final group reported purchasing maize at MK15/kg from ADMARC. This is patently false, and must raise the question as to whether or not they are using their transfers to purchase maize at all. It was not possible to follow up this theory.

Table 5: Source of Maize

	Trading Centre	Village Member	Village Vendor	ADMARC	Elsewhere	Total
Dec-06	7.10%	6.30%	21.30%	16.90%	48.40%	100.00%
Jan-07	18.00%	6.30%	37.70%	13.30%	24.70%	100.00%

Source: Adapted from ACG Consultants, "December Transfer Monitoring Report" and DECT PTM Survey – Author's calculations.

The "elsewhere" category is especially large in December, but was unfortunately not further investigated in January when is still contains around 25% of purchases. ACG Consultants suggests that this may be referring to mobile markets. Fieldwork conducted for this report and in Kadale (2007) indicate that a large proportion of this category refers to beneficiaries purchasing maize directly from farmers who hold excess stocks for sale during the "hungry season". This helps to explain the rapid decline of this category during January when farmers' stocks are declining with many farmers reportedly running out.

Anecdotal Evidence on DECT Beneficiaries' Spending and Resulting Impact on Businesses

During interviews held with secondary beneficiaries of the DECT programme a wide range of anecdotal evidence was collected on the impact for businesses. All but a few of the businesses interviewed (including traders, farmers and market stall owners) indicated that they were able to identify beneficiaries from other customers either because they identified themselves verbally[20], or because they moved together in large groups dressed in "Sunday clothes" around markets or trading centres, or because the interviewee knew the area well and was aware who the beneficiaries were.

Nearly all of the businesses questioned reported knowingly selling to beneficiaries and indicated that sales increased on the day of the transfer. This includes maize traders of all sizes, market stall owners and the owner of a small fixed store in Sungeni who reported twice the amount of usual custom on the day of the distribution in that village. Businesses report selling a variety of goods to beneficiaries including maize; beans; salt; soap; cooking oil; "cheap" chitenjis; umbrellas (they need them to protect the babies carried on their back from the rain and the sun); doughnuts; soft drinks; school uniform; women's league uniforms; girls and ladies clothes; plates; fish; plastic spoons; soya; ground nuts; Irish potatoes and onions.

Every business interviewee indicated that they favoured the cash transfers over in kind aid because of the benefit to themselves and others in the local communities. Three indicated that they had had reservations during the initial stages but were later convinced by the DECT programme. The transfers were particularly welcome during the "hungry season" as trade is traditionally low at this time of year, and the transfers helped to support commerce. Anecdotal evidence suggests an interesting comparison with aid in kind. Several maize traders indicated that when maize is given as food aid, beneficiaries sell some of the maize to traders in order to monetise a part of their aid for the purchase of other goods. Cash aid eliminates the need for such transaction by allowing beneficiaries to choose how to spend their money.

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[20] This offers an interesting insight into the psychology of aid. The readiness with which the beneficiaries reportedly identify themselves suggests that they feel no shame at receiving such aid, and may even feel pride. This supports the idea that giving cash is less demeaning than giving aid in kind.

The distribution has also permitted small and village traders to follow around the DECT team on distribution days setting up temporary stalls near the site of the distribution. In Chimkoka most of these traders indicated that they would otherwise have been in a travelling market on the day of the distribution, whilst in Kachigamba, around half indicated that they would not have been working at all that day. This suggests that the DECT programme stimulated some additional work. One such village trader said that sales were low (as usual for this time of year) but picked up a little on distribution day. He said that "every businessman is happy on distribution day".

Indicative information was also collected on beneficiary household spending habits that would have been difficult to gather from the beneficiaries themselves.

A worker in a canteen in Bowe indicated that he was aware when it was distribution day in Bowe because the "first thing the beneficiaries do is come to [his] canteen and order tea and two scones (large bread rolls) each". He said that after that they asked themselves what else they need. He said he is "assured of a busy day on distribution day". A tea and two scones cost MK35. The canteen usually purchases one bag of flour per day and uses it all to make bread, but on distribution days it purchases 2 bags and sells all of the scones. The owner suggested that the beneficiaries wait for a long time for their cash with no food, so the first thing they do is to come and eat.

The barman/manager of a local tavern in Bowe reported better than usual business on the day of the distribution and the following day. Although he realised most beneficiaries were women, and only men tended to frequent the bar, he believed some husbands were able to access the money. He also reported best business days when the bar had Chibuku (selling for MK55 per bottle) in stock (Carlsberg Green sells for MK75 per bottle). No taverns were interviewed in more remote areas so more rural behaviour could not be ascertained. However a local beer brewer was interviewed; this is discussed below.

The manager of the tavern said that the bar employed three young women; all were there at the time the interview took place around 2pm. There were no customers at this time. The manager said that these women were employed to "attract business". The impact of the cash transfer on transactional sex is not known, and this line of questioning was not pursued. However, it may be reasonable that if business increases for the bar, the ladies are also busier. This may be an interesting avenue for future research as there is potential for the transfer to both increase such transactions as there is more money to spend, and decrease it through female empowerment (they may no longer require the money).

A beneficiary who was also a beer brewer based in a village near Chimkoka said that the transfers had permitted her enough capital to start brewing again after three months of having insufficient capital. She indicated that she split her transfer 50:50 between her micro-enterprise and food. She sells her beer in coca-cola bottles, and noted that she had sold more this year than at this time in an average year. Allthough she may be selling cheaper this year than in previous years due to the low price of maize (an input), sales were also higher in December when prices were around average for that time of year. She brews beer, then waits for the beer to be sold, and uses the income to purchase more inputs. Each brewing cycle takes around one week, and she had had three brewing sessions during January.

Despite these observations, it is strongly believed due to both qualitative and anecdotal evidence as well as observation that only a small fraction of the cash transfer was used for "extravagant expenditure" during the DECT programme.

Multiplier Effects

Multiplier effects will be visible through the purchase of goods and services (including transport of goods) produced locally. We can identify expenditure likely to include a component which would contribute to a local multiplier effect. CWW aimed to increase the food consumption of households in deficit due to poor local production. Although food is likely to have to be brought into the region for this reason, the value chain suggests that food passes through a number of economic actors before it finally reaches the consumer. This will act to increase the multiplier. Furthermore, unexpectedly high stocks held by farmers, a good harvest last year in the southern part of northern Dowa District, and an expected good harvest this year means that a great deal of increased food consumption is likely to be sourced locally contributing positively to the regional multiplier. Most loans are sourced in the local community[21] meaning that loan repayments contribute to local income. A large amount of fertiliser is purchased locally although it is imported by wholesalers, generating income for the region. Finally, some traders who are saw decreased maize sales due to high farmer stocks, have diversified into other products, purchasing them at wholesale outlets in towns or sourcing them from local farmers and transporting them to villages, adding value and increasing the multiplier. The main potential feedback effects are illustrated in Figure 2. It should be emphasised that the region analysed is that of TA Chakhaza, the Traditional Authority in which the DECT programme operated. All purchases sourced outside of TA Chakhaza were regarded as regional imports and act to reduce the multiplier.

Figure 2: Feedback (Multiplier) Effects

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[21] IHS (2005)

Local households and other economic actors who do not directly benefit from Concern cash will benefit indirectly through the repayment of loans and through the increased demand for locally-produced goods and services. They will also be able to take advantage of increased employment opportunities offered by those selling imported food, and the increased demand for ganyu labour. Devereux et al. (2006) report that 15% of non-beneficiaries reported benefiting from the programme through being employed by someone who did directly benefit. No such evidence has been uncovered for the DECT programme, but this is unsurprising since around 70% of the population (and nearly 100% of the needy population) is covered by the programme, reducing supply of labour.

Developing a Social Accounting Matrix for northern Dowa District

The principal method used to calculate the multiplier and to analyse the regional spillover effects of the DECT project is the Social Accounting Matrix (SAM). The SAM classifies market actors and analyses financial flows between then. This framework permits us to estimate the likely flow of the cash injection around the local economy. The primary beneficiaries of the DECT programme are the consumers; the SAM framework allows secondary beneficiaries to be identified.

The SAM is notoriously difficult to construct and requires accurate income and expenditure data of a type not widely available in developing countries[22]. This study uses data collected as part of CWW's Monitoring and Evaluation (M&E) process which analyses how consumers reported spending their transfer. Thus, it does not treat the consumer's assets as fungible. This approach is supported by the Economic Psychology literature which shows that consumers tend to use income from different sources to purchase different goods.

Based on reported consumer expenditure patterns, interviews were conducted with the secondary beneficiaries to establish spending patterns of all relevant actors in the local economy. Secondary beneficiaries' assets are treated as fungible for practical reasons, and due to the fact that many are businesses which tend to exhibit greater degree of fungibility of assets.

It is a weakness of the model that income earned through secondary household income generated by the DECT project (for example through labour or gifts) is treated as income from the cash transfer programme. This assumption is justifiable only on the grounds of simplicity, and the fact that the impact is small. The model could be improved by allowing consumers to spend "normal" income such as that earned through ganyu in a different way. This would require further data on total consumer expenditure rather than focussing on the use of the transfers.

This framework allows for the DECT transfers to be "followed" around the local economy until it leaves. These leakages are in the form of imports (of fertiliser for example), tax or savings.

Due to the complication of collecting detailed income and expenditure data, a "Reduced" Social Accounting Matrix (RSAM) is developed using a sample of relevant market actors. Average income and expenditure is then calculated rather than total regional financial flows. Although this leaves the potential for selection bias, it is believed that a reasonable sample has been obtained of "typical" actors, and that the

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[22] For a detailed study see Adelman et al. (1987)

information provided is of a high degree of accuracy. The calculation of the multiplier alters very little when one observation is removed or one added, and there is no consistency in the direction of the change in the multiplier. This indicates that the estimates obtained are of a reasonable degree of accuracy.

The following principal actors were identified through field visits, data collected by Concern Worldwide and the opinions of those used to working in the area.

Table 6: Relevant Economic Actors

Category	Division	Description	No. Interviewed
Maize (and other) Traders	Large Traders	>1000mT per year.	3
	Medium Traders	100-1000mT per year.	3
	Small Traders	50-100mT per year.	4
	Village Traders	Traders who sell a wide range of items around villages, including maize, other food stuffs, and non-food stuffs.	5
	ADMARC		2
Commerce	Local Commerce	A catch-all category including canteens, taverns, fixed market stalls, shops.	11
	Wholesalers	Includes suppliers of farming inputs, constriction materials and large food stores.	5
Farmers	Large Farmers	>25mT per year.	6
	Medium Farmers	5-25mT per year.	3
	Small Farmers	0.25-5mT per year.	3
Households	Consumption, Labour, Gifts/Remittances		Information taken from CWW's M&E data and verified with supplementary checks.
Institutions	Schools	Any schools requiring payment of school fees.	4
	Health	Large Hospitals and small, private clinics.	2

	Savings/Investment	Private and Business saving is accounted for.	
Government	External Financial Flows	Notably taxes. The impact of the fertiliser subsidy is not analyses and no attempt is made to quantify it.	
Imports		Any purchases made outside of TA Chakhaza. Includes gifts made to relatives outside of the local area.	

Some activities are analysed in detail to assess the impact of the transfers on the principal sectors (maize, fertiliser) or those of specific interest such as education and health. Note that expenditure by one actor represents income for another actor.

Interviewees overwhelmingly reported that they did not separate business from other household income. Thus even large traders reported spending on health and education. The exception to this rule is wholesalers, for which business expenditure only was entered. This helps to provide a more accurate picture of the local economy.

Classifying interviewees posed several difficulties. Definitions for farmer and trader size were provided in Kadale (2007), and it was possible to ascertain "normal" production/trading levels from farmers and traders in order to help categorise these groups. Other information such as sales in January and farm size was also obtained where necessary.

This categorisation of farmers and traders has been used to allow comparison to be made with Kadale (2007), however, it should be noted that it is an approximate classification with those falling into the medium-sized categories are often only slightly larger than "small" or slightly smaller than "large".

Other problems occur because traders are often not only traders. The fact that traders call themselves "businessmen" pertains to this difficulty. Businessmen are often involved in several areas of business placing their money in different areas depending upon the time of year. The aim is to ensure continual movement of money in order to turn a profit, and not to waste potentially productive resources by leaving them in the bank[23]. This occurs for a number of reasons including high inflation levels, the seasonality of many business enterprises (with income and thus sales being strongly linked to agricultural cycles), the lack of access to the formal banking

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[23] Although money in the bank might be earning interest, if this interest is lower than that the rate of return which can be earned by investing the money elsewhere then the money will be preferred out of the bank. This is especially the case in an unstable macroeconomic environment. Although the bank is seen as a "safe" option in developed countries, with unstable inflation the real rate of return (measured by the interest rate offered by the bank minus inflation) is more risky and may even be negative. If less risky return can be earned elsewhere then the money will again be preferred out of the bank. Although the macroeconomic environment is stabilising in Malawi, such habits take a long time to break as trust must be earned with consistently stable and trustworthy macroeconomic policy. Furthermore, the apparent risk aversion of businessmen in Dowa exacerbates this.

sector in rural areas and a social climate in which being seen to build up extensive savings may be problematic for social relations.

Examples of such businessmen include a former teacher who was a large trader, owned a fixed store and had financed and owned a private secondary school. In another example a medium-sized (nearly large) farmer also traded maize and owned a fixed stall in the market. In yet another, a large trader in Bowe also owned a fixed market stall and owned a mini-bus. An attempt was made to classify such businessmen according to their main activity. However, it should be noted that this was an imperfect science, and their main activity varied strongly throughout the year.

Despite these problems, we believe the classification into categories to be a reasonable representation of the main business activities of respondents. Furthermore the results are robust to modifying the categories of respondents in borderline cases.

In order to ascertain the initial use of the cash post-transfer monitoring data collected by the CWW M&E team were used. These data contain information on the source of maize purchase, and on the funds used for other purposes. This was combined with additional information on spending patterns collected during the fieldwork stage of this project to assign expenditure on different goods to different market actors and are shown in Table 7.

Table 7: Percentage of Transfer Spent with Different Sectors - DECT

Sector	Dec-06	Jan-07
Large Traders	2.35%	1.73%
Medium Traders	4.73%	3.49%
Small Traders	9.85%	8.34%
Village Traders	17.97%	23.94%
Local Commerce	17.30%	18.14%
Wholesalers	9.52%	9.05%
ADMARC	9.91%	7.12%
Large Farmers	4.73%	3.49%
Medium Farmers	9.43%	6.95%
Small Farmers	3.21%	3.08%
Education	0.00%	2.95%
Health	3.00%	3.69%
Households	3.00%	2.68%
Savings	5.00%	5.36%
	100.00%	100.00%

Source: Adapted from ACG Consultants, "December Transfer Monitoring Report" and DECT PTM Data – Author's calculations.

The Multiplier: Caveats and Explanations

This information is then used to analyse total flows in spending and income to find the overall multiplier for the DECT programme in northern Dowa District. The steps involved are indicated in Appendix 3.

The output generates a total multiplier of between 2.28 and 2.79. Since beneficiaries' spending is treated as the exogenous shock in the model, this means that for every

dollar of income the DECT programme injected into the local economy additional "value added" of over $2.28 was created through stimulation of local demand throughout the value chain. Thus the total monetary gain for the local economy is the dollar of injected income plus the $2.28 of stimulated income. In a simple multiplier model (and in the minimum requirements approach used to verify this result), this is the equivalent of CWW purchasing the same goods from the same outlets as the beneficiaries and then distributing the good amongst the beneficiaries. The effect would be the same: a local multiplier of 2.28 plus the beneficiaries increased consumption.

It is important to note that the value of the multiplier varies depending upon the assumptions made. The upper bound assumes that all rent payments (for housing, business and farm), petrol consumption, and travel expenses are made within the region. The lower bound assumes such payments leave the region. In reality, interviewees indicated that part of these expenses were made within TA Chakhaza and part outside meaning that the true multiplier is likely to lie somewhere between these boundaries.

A number of other assumptions were made which are likely to bias upwards the multiplier estimates. Firstly, all purchases by beneficiaries were assumed to be made within TA Chakhaza, with savings being the only leakage from the local economy. Although anecdotal evidence from interviewees suggests that this is not too far from the truth, there is certainly some leakage. Sensitivity analysis shows that if 10% of spending is assumed to occur outside of TA Chakhaza, the multiplier drops to between 2.00 and 2.45. Although this no empirical evidence was collected to support this, anecdotal evidence suggests that these estimates offer more reasonable boundaries for the regional multiplier since many beneficiaries in the north shop in Kasungu and some in the south go to Mponela, both outside of TA Chakhaza.

Table 8: Multiplier Estimations

Multiplier – All Beneficiary Expenditure Assumed Local		
Month	Lower Bound	Upper Bound
Dec-06	2.27	2.74
Jan-07	2.30	2.79

Multiplier – 10% Beneficiary Expenditure Assumed External		
Month	Lower Bound	Upper Bound
Dec-06	2.00	2.41
Jan-07	2.02	2.45

These estimates may seem large, however, they are of the same order of magnitude as several other studies have found in other countries. Giles and Jennings (1982) find a multiplier of 2.94 for the whole of Malawi for the Viphya Paper Mill Project; Woller and Parsons (2002) find a multiplier of 2.24 for a village health bank project in Ecuador while Moore (1975) estimates multipliers for different regions in United States finding results of between 1.25 and 5.00 depending upon the region. These results are also confirmed using a different method for calculating the regional multiplier. The minimum requirements approach explained below in this report finds a regional multiplier of 2.11 for TA Chakhaza. Finally, the linkages between and within sectors in Dowa are important. Several economic actors are likely to touch any good before it reaches the consumer, even once that good is inside TA Chakhaza. Each agent adds value to the consumer with each having a highly specialised role. This serves to increase the multiplier.

It is important to emphasise the meaning of the multiplier. Firstly it is indicative of flows of money around the regional economy. A multiplier of 2 for example, means that on average, a dollar bill passes through two economic agents or individuals in the local area before leaving it.

The transfer will also have other impacts. It is permitting beneficiaries to access goods and services they would not otherwise have had access to. The question must arise as to whether additional goods and services were created to meet the additional demand or whether goods and services were diverted from other people's consumption, that is, whether the transfer had a redistribution effect.

Since both unemployment and underemployment are rife[24] in Malawi there is ample room for increased demand for rurally-produced goods and services to increase production of these services. An example may be retail services in markets, or other local services such as transport. It should be noted however that such scope to reduce underemployment may be reduced during the season in which the DECT programme was implemented due to high labour demand for agricultural work. There is also limited scope for increased labour demand since the largest proportion of increased demand is for agricultural produce. Since this takes time, increased demand cannot be immediately satisfied by increased production. Finally, anecdotal evidence in the form of complaints from large farmers supports the theory that the cash transfers have reduced supply of labour while increasing demand. This is because the targeted beneficiaries are the most likely group to offer their labour services on farms in the form of ganyu. The cash transfers make them less dependent on ganyu income, and their labour is transferred to either work on their own small farms or unemployment.

An additional impact of labour being transferred from large to small farms relates to productivity. If small farms are less productive than larger ones, then the total output of the region will suffer as a result.

Despite these caveats, it is likely that the programme did generate additional production on a local level, with many local businesses reporting increased demand during distribution days. There were no examples of businesses reporting having employed additional workers as a direct response to the increased demand suggesting that the scheme contributed to reducing underemployment of those already employed rather than having an impact on unemployment.

Large wholesalers and ADMARC did report employing additional temporary labour to meet increased demand for fertiliser, but this was put down to the Government fertiliser subsidy programme[25]. Both ADMARC and several large wholesalers did however report being able to identify beneficiaries and indicated that they purchased fertiliser. It might be interesting to look at the impact of such cash transfer programmes on the regional labour market.

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[24] The ISH2 (2005) indicates that the average employed Malawian works an average of 27.7 hours per week, whilst the average unemployed Malawian works an average of 4.6 hours per week. These figures disguise great seasonal variation with long hours being worked when it is necessary for agricultural work to be undertaken and few hours at other times.

[25] An interesting result of the Fertiliser Subsidy Programme is that the seasonality of fertiliser demand has increased. Since the programme only offers subsidies from November to January, households which would otherwise have purchased subsidy during other months as a form of saving chose to wait and make their purchases at the subsidised rate. This has led to minor logistical problems for some large wholesalers which report decreased sales outside of the subsidy programme period and huge increases during the subsidy period.
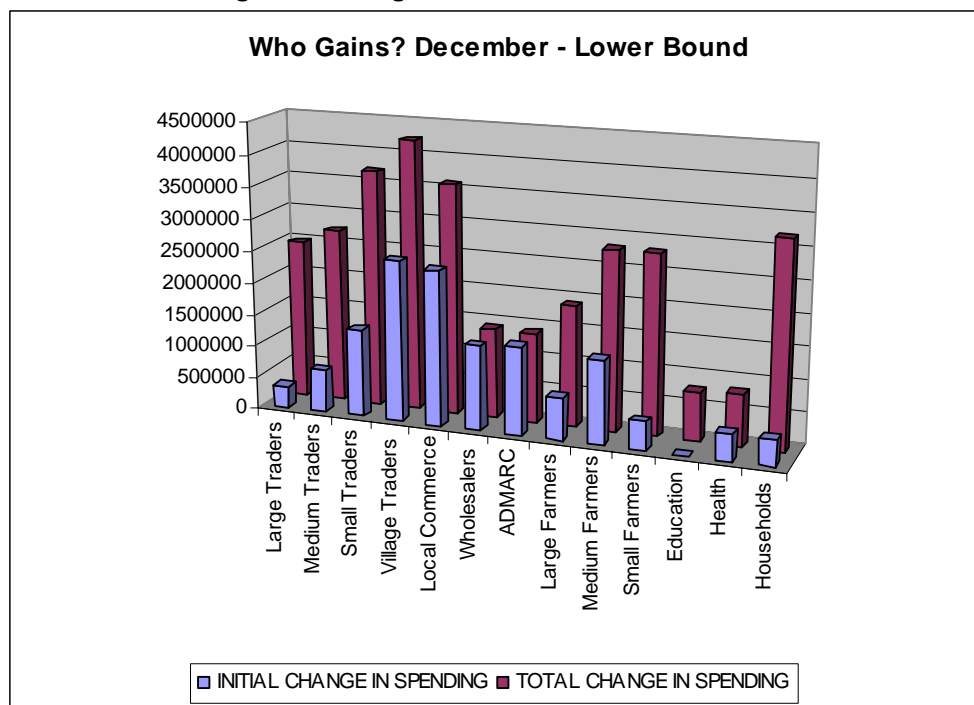
Although this analysis gives an overall idea as to the overall impact of the programme in the region, it does not identify the actors which benefit most from the programme, with the exception of the primary beneficiaries.
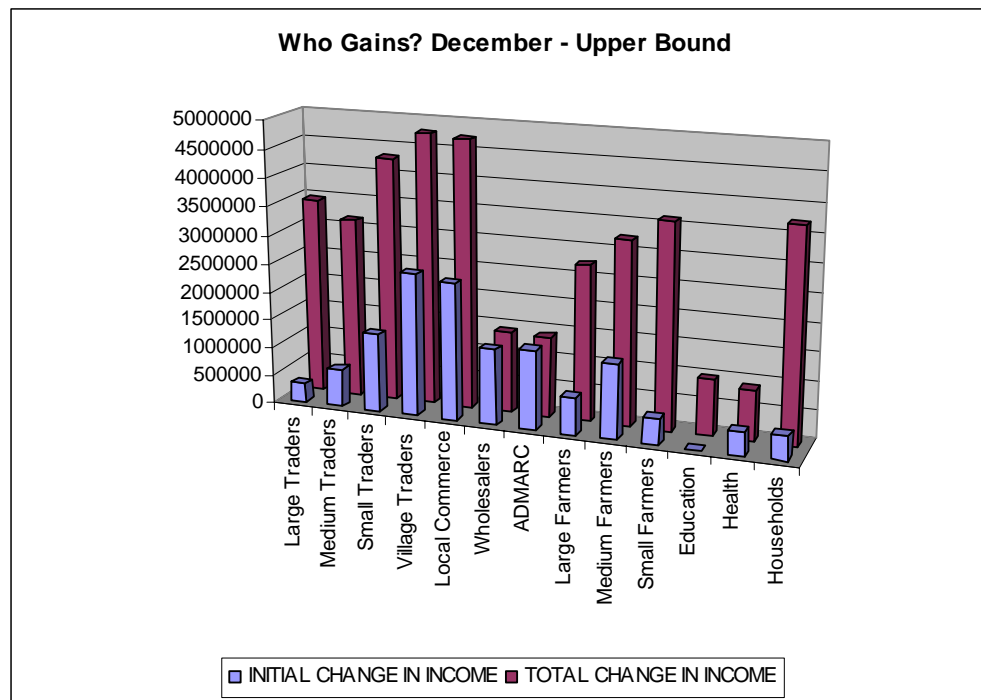
Impact of DECT for Different Sectors

The multiplier suggests that there are "rounds" of spending. The cash transfer is spent in the first round by the primary beneficiaries, the secondary beneficiaries then spend the income they have received from the first round, and so on. The main secondary beneficiaries are identified by Concern's own data which tracks recipients' spending of the transfers. Using the RSAM framework it is possible however to analyse the total gains of each group after all spending rounds have been completed. Figure 3 and Figure 4 below show the increase in income for each group for December 2006. The blue bars show the initial spending by beneficiaries, whilst the purple bars indicate the total increase in income of each group as a result of the DECT programme. It is important to note that these represent total income for each group, and not income per economic agent. So, for example, although the total gain for village traders is large, this must be divided between all village traders. Similarly, the gains for wholesalers are relatively small but there are fewer wholesalers than village traders.

It should be noted that for each month portrayed here, all expenditure patterns are held constant within scenarios with the exception of that of the DECT beneficiaries. This therefore offers an opportunity to analyse the impact on each group and for the total multiplier of the different spending patterns.

Figure 3 and Figure 4: Sectorial Gain, December

Who Gains? December - Upper Bound

Legend: ■ INITIAL CHANGE IN INCOME ■ TOTAL CHANGE IN INCOME

Categories (x-axis): Large Traders, Medium Traders, Small Traders, Village Traders, Local Commerce, Wholesalers, ADMARC, Large Farmers, Medium Farmers, Small Farmers, Education, Health, Households

The major difference between the upper and lower bounds is that without exception, each groups gained more in the upper bound scenario in which transport and rent are assumed to be local expenditure. The pattern of the gains however is similar.

DECT beneficiaries spend only a small proportion of their transfer with large traders, however, the total gain for this group is much larger. This is because the supply chain works in both directions with some smaller traders bulking and selling on to larger traders who export to major towns such as Lilongwe, as explained in Kadale (2007), and other small traders purchasing maize from larger traders and then selling on to the public.

The gain for village and small traders in the initial round is evidence that households purchase a large proportion of their consumption needs from these groups, who, in turn source their produce from larger traders and farmers of all sizes.

Although traders here refer principally to maize traders, it must be noted that many traders, particularly smaller ones deal in a variety of produce. Since farmers held large stocks of maize and were selling directly to the public, traders' share of spending is lower than it normally would be. Several traders also reported diversifying in order to meet consumer demand as a result.

Although classification of farmers can be difficult it appears that the main secondary beneficiaries from the initial spending by primary beneficiaries are medium farmers. It is known that many farmers also trade and had kept maize stocks to sell during the hungry seasons when prices tend to be higher. The fact that medium-sized farmers gain most initially may be due to the fact that they are more accessible and more likely to sell their crop directly to consumers than larger farmers. Smaller farmers are likely to see their maize stocks run out more rapidly than their medium-sized counterparts, limiting their sales to consumers.

It is however, the smaller farmers who gain most after all spending rounds are complete. This should not be surprising as it is well-known that Malawi relies on small-scale farmers, with this group producing the vast majority of national food produce. The greater part of any increase in food demand due to the DECT project will therefore necessarily benefit this group.

Some beneficiaries reported purchasing maize and fertiliser from ADMARC, however, their overall gain is limited with few other groups sourcing from ADMARC.

The lack of income for wholesalers over and above that directly stimulated by the DECT beneficiaries is perhaps surprising. This is particularly the case since many village traders and those falling into the local commerce category source their products from wholesalers, and both of these groups are large secondary beneficiaries.

There are two explanations for this result. Firstly, many of those who run fixed market stalls source their wares from wholesalers outside of TA Chakhaza, in particular from Lilongwe and Mponela. Thus, the additional gain is very small for wholesalers within the region. Secondly, many of those involved in local commerce reported being involved in several business activities, and that their spending was seasonal. Since the interviewees were requested to provide information on expenditure in January only and this is a "lean month", many did not re-stock their shops during this period, but instead used up previously purchased stock. It is anticipated that a similar analysis conducted at another time of year (perhaps after the harvest) would bear witness to greater tertiary gains for wholesalers.

Anecdotal evidence suggests that there may be longer term benefits for wholesalers. A major wholesaler in Bowe indicated that the transfer programme had introduced new business with beneficiaries easily being separated from regular customers as being "unknown faces". This leaves the potential for repeat purchases in the future.
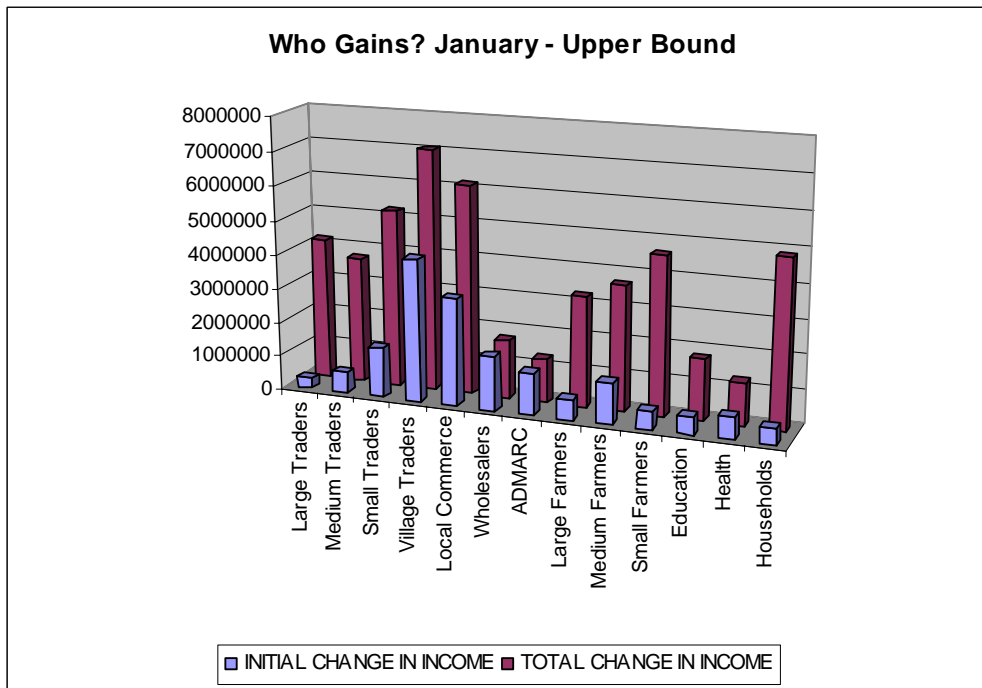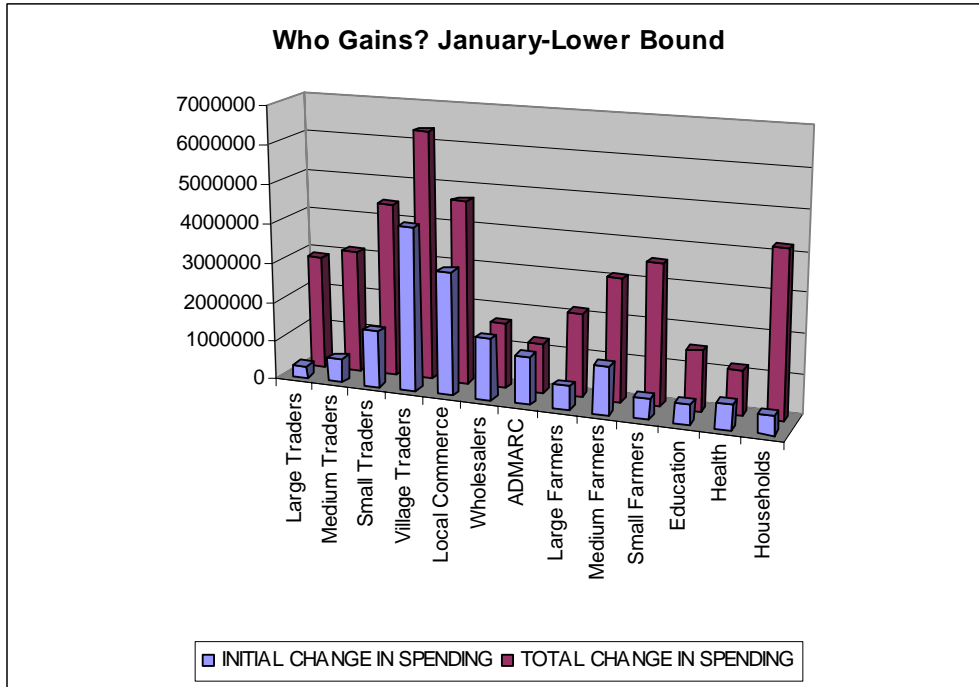
The expenditure on health is born out through an interview with a private clinic in Bowe. The clinic reported better business in December and January this year compared with the same period last year. This was put down partly to the DECT programme. The doctor reported one case of a man who had been ill and in great pain for 3 weeks before coming to the clinic. The man said he was a Concern beneficiary, and did not have the money to pay for treatment beforehand. The clinic charged MK750 for the treatment.

Although the PTM data collected by the CWW M&E team indicated that none of the transfer was spent on education in December as schools were closed for the Christmas holiday/ Planting period, a part of it did find its way to schools through higher order beneficiaries[26].

Households, including those of the direct beneficiaries, are also indirect beneficiaries, with part of their spending finding its way back to them in the form of wages and inter-household gifts. Although, as previously indicated, the labour market has not been explored in detail in this study, there is potential for the DECT programme to stimulate labour demand (employment). Such stimulation may exist but is likely to be minimal.

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[26] Note that schools are included here as actors. Thus school income resulting from the project/spending on school does not include expenditure on school books/uniforms/stationary which tend to be included in local commerce expenditure or represent imports (a leakage of money) since a large part of such expenditure is made outside of TA Chakhaza.

Figure 5 and Figure 6: Sectorial Gains, January

Who Gains? January-Lower Bound

Legend: INITIAL CHANGE IN SPENDING, TOTAL CHANGE IN SPENDING

Categories: Large Traders, Medium Traders, Small Traders, Village Traders, Local Commerce, Wholesalers, ADMARC, Large Farmers, Medium Farmers, Small Farmers, Education, Health, Households

Who Gains? January - Upper Bound

Legend: INITIAL CHANGE IN INCOME, TOTAL CHANGE IN INCOME

Categories: Large Traders, Medium Traders, Small Traders, Village Traders, Local Commerce, Wholesalers, ADMARC, Large Farmers, Medium Farmers, Small Farmers, Education, Health, Households

The results for January follow a very similar pattern to those of December and the explanations remain identical. There is one major difference however. The beneficiaries reported spending around 3% of their January transfer on education. This is primarily because the school terms starts in January and payment of school fees is due. Interviews with schools within TA Chakhaza offer enlightening anecdotal evidence regarding the important impact of the DECT programme for education.

All of the four schools indicated that they knew of pupils whose parents were DECT beneficiaries. The CCAP secondary school in Bowe said that "many, many students [have said] 'when my mother gets something from Concern, I will pay [the school fees]'". All schools indicated that the programme has helped "very much" to pay school fees. An Assemblies of God primary school said that there had been no increase in enrolment, whilst the Anglican Secondary School, All Saints in Bowe said that the corresponding time last year a full three quarters of the 112 enrolled at the beginning of January had dropped out by the fifth week of term. This compares with only two out of 98 pupils this year, and both of these had moved to other schools.

All Saints Secondary School said that now half of the 98 enrolled pupils have contributed towards their fees this year. The Government Secondary School in Bowe said that after five weeks of term last year only six pupils had paid their fees, compared with between 20 and 30 this year. They also indicated that a surprisingly large number of pupils had promised contribution to their fees by Monday 13th February, 2007. The official did not realise that a cash distribution was due in Bowe on Thursday 8th and Friday 9th February. Another school had been promised fees by the end of February. The interviewee believed this was to time with the selling of tobacco produce and did not mention the DECT programme as a possible explanation.

Two of the secondary schools had noticed a marked improvement in the pupils' ability to learn. They put this down to them being better fed, partly thanks to the DECT projects. One of these said that they are now completing a full school day lasting until 2.30pm whilst last year, the pupils were too hungry and exhausted to learn, and school frequently finished between 11am and midday because of this. It should be noted that none of the schools where interviews were held benefit from the Government/WFP school feeding programme.

It may be interesting to pursue the impact on school attendance, fee-paying and pupil concentration in any future cash transfer programme.

Multiplier Using Minimum Requirements Method

A quick review of the multiplier literature reveals a simple and relatively accurate method for calculating the multiplier. The minimum requirements approach uses production for local consumption as a proxy local consumption. In the short-run, with no technical progress, increase in production for local consumption requires an increase in employment. The approach first estimates the minimum employment necessary in each region in order to be self-sustaining depending upon its population. This can be done per industry, or in total, with the per industry approach favoured. Since the aim here is simply to give a demonstration, we will concentrate on the simpler aggregate model. A model disaggregated by industry would pose additional problems in Malawi since industries tend to be highly regional specific.

There are a several steps to calculating the multiplier using the minimum requirements approach.

Using data from the 1998 census, each of the 316 Traditional Authorities (TAs) in Malawi is categorised into one of 16 classes depending upon its population. Table 9 below illustrates these classes. The median population in each group is calculated.
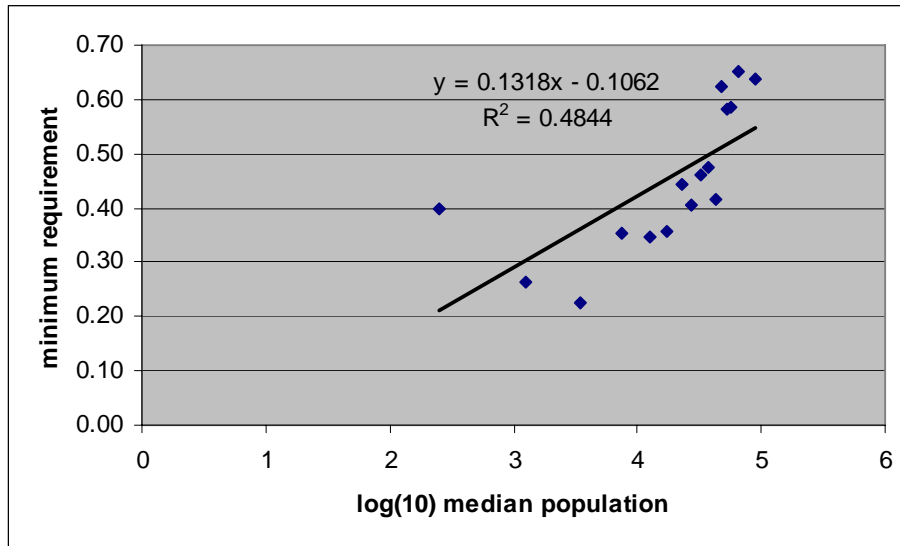
For each industry and in total, the minimum percentage employed within the class is assigned to each region within that class as the minimum requirement. Anything above this is considered to be employment for export and not for local consumption. Thus, increased employment in this area will not contribute to local consumption and will not contribute to the multiplier effect. Results are reported in Table 9:

Table 9: Mean Populations and Minimum Requirements by Class

Class	Median Population	Minimum Requirement	Number Observations
1	250	0.398773	16
2	1250	0.263990	18
3	3500	0.226375	33
4	7500	0.355007	45
5	12500	0.346761	48
6	17500	0.358088	37
7	22500	0.443577	22
8	27500	0.404358	16
9	32500	0.460144	19
10	37500	0.473491	13
11	42500	0.414524	16
12	47500	0.625386	8
13	52500	0.582249	8
14	57500	0.584443	6
15	65000	0.649797	5
16	90000	0.636194	6

Each class now has a mean population and a minimum requirement for each industry. The minimum requirement is regressed against the log_{10} of the mean population in order to obtain a line of best fit. That is: $E_N = \beta_0 + \beta_1 \log_{10} POP$ where E_N is the non-basic employment (employment generating production for consumption within the region); POP is the population of the region, and log_{10} is chosen following Ullman and Dacey (1960) and Woller and Parsons (2002) who found that plotting the minimum employment requirement across industry sector and local population on a log_{10} scale closely fits a straight line. The results are shown graphically in Figure 7. The slope is significant at the 1% level but the intercept is not statistically different from zero.

Figure 7: Minimum Requirements against Population

The resulting equation is used to estimate the multiplier impact of an exogenous stimulus for each region. The population of TA Chakhaza is 63,654. This is placed into the generated equation to find the non-basic employment for TA Chakhaza of 0.5269. That is, the minimum employment within the TA in order for it to survive alone is around 53%. This is fed back into the multiplier calculation to find a multiplier, k, of 2.11 (calculations are shown in Appendix IV).

This result is of a similar order of magnitude as the more complicated methods used in this report. Indeed, this estimate lies at the lower end of the range for the multiplier (2.00 to 2.45) predicted by the SAM method assuming 10% of beneficiary expenditure is outside of TA Chakhaza. This both lends weight to the minimum requirements method for calculating the multiplier, and helps to confirm the results found using the RSAM approach.
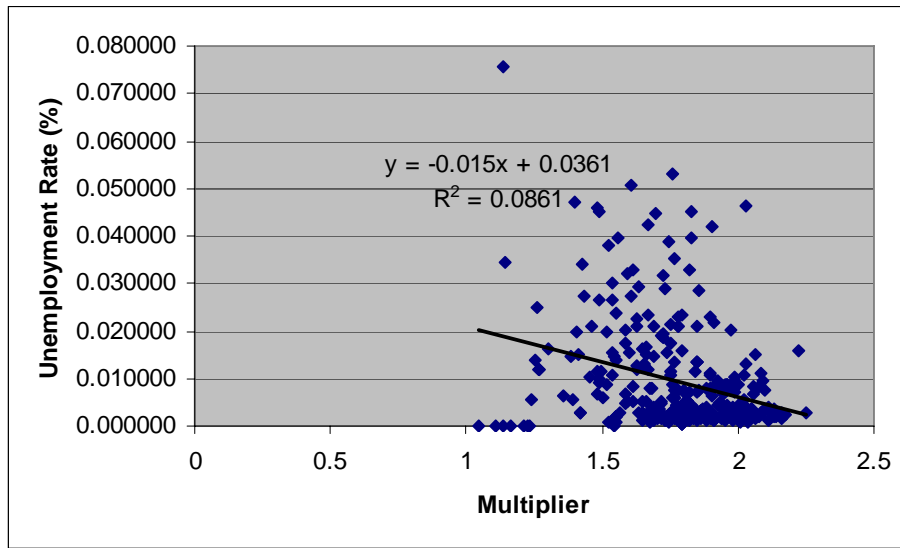
The multipliers for other Malawian regions can be found simply by plugging in their populations into the equations estimated above.

The minimum requirements method does not however permit to look at the impact of a change in exogenous expenditure on different groups within a region. It does however, help to analyse the relationship between the multiplier and unemployment.

The Minimum Requirements Approach and Unemployment

This report introduces the novelty of estimating the relationship between the multiplier and unemployment. Using the same 1998 census data which collected information on employment, the multiplier is estimated and regressed against unemployment in each TA in Malawi to find the following relationship:

Figure 8: Relationship between Multiplier and Unemployment in all TAs

The relationship is weak, however both the intercept and slope are statistically significant at the 1% level and there clearly exists a negative relationship between the unemployment rate and the multiplier. That is, as the regional multiplier increases, regional unemployment decreases. This is particularly interesting for any transfer programme. It suggests that any region with a "large" multiplier will see increase benefits in terms of increase employment. Future research could look into the strength of this relationship controlling for other factors which the data used in this present analysis do not permit to do.

Despite the weak relationship, this helps to indicate that the DECT programme may have had an impact on unemployment which the present analysis has not quantified. As previously suggested, the impact of cash aid on the labour market may be an interesting area to pursue in any future cash transfer programme.

Additional Anecdotal Information

During the interviews with businesses and beneficiaries additional information and evidence of interest was also gathered and is presented in this section.

There appeared to be interest in easier access to the formal banking sector amongst the business community in TA Chakhaza which felt this may be a positive outcome of the DECT programme. However a number reported having already approached OIBM for credit and had been refused or told to form a club or were having administration difficulties. It was noted that only one of the interviewees (with the exception of Madisi Hospital) kept financial records of transactions. It is therefore recommended that as part of any expansion resulting from the DECT programme into the area by OIBM, an effort is made to encourage basic bookkeeping by potential credit applicants in order to assist the bank in offering such services.

Information regarding village heads receiving benefits from the transfer programme was obtained from a large trader in Madisi and was followed up whilst interviewing beneficiaries in order to obtain supplementary information regarding their spending habits. During these discussions one beneficiary from Katondo reported giving MK10 to the village head and indicated this was not uncommon. It was noted by another

beneficiary that the village head is often given small gifts of money; however these gifts are given in kindness and gratitude and are entirely the choice of the donor. One beneficiary admitted to being the wife of the chief of Padzayni, and another beneficiary indicated that the village head from Mtakuzi is a beneficiary himself.

It was noted during a distribution at Madisi that several beneficiaries came in order to withdraw money they had left on their card from the pay point to which they were assigned. They had previously been told that they could withdraw money from any pay point but it was judged that there was already a heavy workload and they were sent home. It is suggested that in any similar programme in the future, more careful assessment of which paypoints can cope with "non-regular" beneficiaries withdrawing cash in order to avoid such problems.

It was discovered that there has been problems for entire villages (according to the village head and residents) regarding the transfer payments. Although beneficiaries had registered and had their cards, they were unable to withdraw money up to January. These villages include Chimamba Mchenga and Kulugulu. This posed problems because beneficiaries used their cards as security against which they were able borrowed money. The money-lenders take the cards as proof of future income streams and are therefore happy to lend money. Although this study has not looked at the consequences, short-term katapila lending attracts high interest and this is likely to lead to additional problems for beneficiaries.

Several traders interviewed raised points relating to communication between themselves and CWW regarding the DECT programme. Although it is believed that representatives of CWW made very clear their intention not to purchase maize themselves, a maize trader in Bowe who did not attend the initial traders meeting said that those who did attend mis-reported or mis-understood events at the meeting. He was led to believe that Concern would be buying maize from traders to give to beneficiaries. He bought 150 bags of maize believing Concern would purchase it from him. A large farmer-trader in Madisi who had attended the initial traders' meeting had kept back a large quantity of maize because he had understood from the meeting that traders had been told not to sell the maize and that the beneficiaries would buy it from them. He was left with a stock of around 300 bags of maize. He believed that the beneficiaries were not buying maize, but believed that the maize was running out in the villages and that they would soon come. A different large farmer-trader in Madisi had seen no impact on his business because he did not have the stocks the beneficiaries wanted to purchase. He noted communication problems at the initial traders' meeting and believed most of those who attended were small traders who were unable to understand the concept of the DECT programme.

Summary and Recommendations

This report has gathered both qualitative information and analysed quantitative data collected during an intense two weeks of fieldwork, and made use of National Census data to support the findings of the fieldwork. An additional four weeks has been spent reviewing the literature, developing the RSAM model used, and conducting other desk research.

A review of related literature and a summary of findings from the FACT programme help to place this study in perspective, and offers evidence to support the assumptions and findings.

This report draws on information gathered to create a reduced social accounting matrix based on links within the regional economy which is used to generate estimates for the regional multiplier which results from the DECT programme. The overall impact of the programme for different groups of economic actors is quantified under different scenarios.

Anecdotal evidence offers additional insight into the market impact of the programme as well as some degree of social impact. This is particularly relevant with regards to education.

Based on the findings, a number of recommendations are made. These recommendations here take two forms and are linked. Additional research is recommended into several key areas which will further help to understand the impact on such transfer programmes. Based on evidence collected suggestions are made for changes in any future cash transfer programme regarding the linking of transfers to maize prices, and proportions of households targeted.

1. Look at longer-run impact of the cash transfer programme on agricultural production. The DECT programme facilitated and encouraged the purchase of fertiliser which will have a positive impact total agricultural production. There may also be longer run "learning effects". Although the DECT programme was a response to a negative exogenous shock (poor rain), it should also be verified that there is no negative impact on future production, which may occur if it is believed that negative production shocks resulting from poor farming will also be accommodated. Comparing TA Chakhaza with a neighbouring TA which received no aid would assist in this.
2. Try to establish whether the DECT programme has had a "crowding out effect" on remittance flows. Remittances or gifts are a traditional way to cope with negative production shocks. Family members or friends who work in Lilongwe and other regional towns or those nearby who have had better harvests are likely to remit cash or goods in the event of poor harvest to assist relatives and friends. These flows of cash are partially dependant on the income of the beneficiaries, and may decrease in response to the receipt of DECT cash. One village trader interviewed indicated that he was very happy with the DECT programme because his uncle was a beneficiary, and the trader no longer had to support him.
3. Look at other social effects such as transactional sex and the impact on school attendance and the concentration levels of pupils.
4. Attempt to assess in more detail the impact of cash transfers on labour markets. It would be interesting to know to what extend the additional demand

reduces unemployment and underemployment. Furthermore, the impact on supply of ganyu should be analysed in more detail. The drop in labour supply witnessed in TA Chakhaza could be minimised by targeting a smaller percentage of households. This would reduce labour supply less, and middle income households which do not benefit from cash transfers would benefit through finding ganyu more easily. Reducing the proportion of households targeted will also help to minimise any danger for price inflation which is likely to occur where supply is short and the concentration of beneficiaries high. Although no inflationary impact has been found on this occasion, it is not doubted that under different supply conditions, the programme would have been inflationary.

5. Although the transfers are intended primarily for purchasing maize, it is recognised that they are used for other things which benefit the beneficiary and the local community, including other food stuffs, hygiene/body care, medical and school fees etc. The value of the transfers are linked to a sophisticated household economy model which allows the value of the transfers to vary with the price of maize. It is recommended that the "framing" of the transfer amount be considered for any future programme. In particular, it is recommended that beneficiaries are told the minimum transfer amount per person they will receive. This can be framed simply as the transfer. All fluctuations can then be framed as "top-ups". This can fluctuate each month based on the impact of the price of maize through the household economy model and beneficiaries can be informed of the "top-up" each month which would be equal to zero in the case of very low maize prices. This would help to prevent ill-feeling amongst beneficiaries and assist in planning since they would know the guaranteed minimum. It may however have a negative side: psychologists have found that income framed as "gains" is more likely to be spent frivolously than other income. Monitoring of the impact would thus be important.

References

Adelman, I., J.E.Taylor and S.Vogel (1988), "Life in a Mexican Village: A SAM Perspective", *Journal of Development Studies*, Vol.25, No.1, pp.5-24.

Agar, J. and P.Chiligo (2007), "The Maize Merket (Madisi/Bowe EPAs), Report prepared by Kadale Consultants for Concern Worldwide (Malawi).

Archibald, G.C. (1967), "Regional Multiplier Effects in the UK", *Oxford Economic Papers,* New Series, Vol.19 No.1 pp.22-45.

Brewin, M., S.de Cleene, J.Kinsley and E.Achtell (2006), "Rapid Needs Assessment and Market Analysis, Dow District, Malawi, September/October 2006", Concern Worldwide Report.

Brodsky, H. and D.E.Sarfary (1977), "Measuring the Urban Economic Base in a Developing Country", *Land Economics*, Vol.53, No.4, pp445-454.

Carnahan, M., W.Durch and S.Gilmore (2006), "Economic Impact of Peacekeeping", *Discussion Paper* for the Department of Peacekeeping Operations of the United Nations.

Cash Transfer Forum Briefing and Output Paper (24/7/06), "Social Cash Transfers – Learning for Social Protection", Capital Hotel, Lilongwe.

Chipeta, C. and W.Kachaka (2005), "Role of Migrants' Remittances in an unstable Low-income Economy: A Case Study of Malawi", University of Malawi, *Chancellor College Working Paper* No.2005/05.

Chulu, O. and P.Wobst (2001), "A 1998 Social Accounting Matrix for Malawi", *Discussion Paper*, Trade and Macroeconomics Division of International Food Policy Research Institute.

Coe, D.T. and E.Helpman (1993), "International R&D Spillovers", *NBER Working Paper* No.4444.

Davies, S., J.Easaw and A.Ghoshray (2006), "Mental Accounting and Remittances: A Study of Malawian Households", *Research Paper*, University of Bath.

Devereux, S. P.Mvula and C.Soloman (2006), "After the FACT: An Evaluation of Concern Worldwide's Food and Cash Transfer Project in Three Districts of Malawi, 2006", *Research Paper*, Concern Worldwide Malawi.

Frechtling, D.C. and E.Horváth (1999), "Estimating the Multiplier Effects of Tourism Expenditures on a Local Economy through a Regional Input-Output Model", *Journal of Travel Research*, Vol.37, pp.324-332.

Frey, D.E. (1989), "A Structural Approach to the Economic Base Multiplier", *Land Economics,* Vol. 65 No.4 pp.352-358.

Giles, B.D. and A.Jennings (1982), "Project Appraisal and the Multiplier: The Case of the Viphya Pulp Mill Project in Malawi", *Oxford Economic Papers*, New Series, Vol.34 No.2 pp.390-402.

Greig, M.A. (1971), "Regional Multiplier Effects in the UK: A Comment", *Oxford Economic Papers*, New Series, Vol.23 No.2 pp.277-284.

Javorcik, B.S. (2004), "Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers Through Backward Linkages", *American Economic Review*, Vol.94 No.3, pp.605-627.

Judson, R.A., R.Schmalansee and T.M.Stoker (1998), "Economic Development and the Structure of the Demand for Commercial Energy", *Report* No.33 for the Joint Program on the Science and Policy of Global Change, Massachusetts Institute of Technology.

Kherallah, M. and K.Govindan (1999), "The Sequencing of Agricultural Market Reforms in Malawi", *Journal of African Economies*, Vol.8 No.2, pp.125-151.

Moore, C.L. (1975), "A New Look at the Minimum Requirements Approach to Regional Economic Analysis", *Economic Geography*, Vol.51, No.4, pp.350-356.

Mulligan, G.F. and L.J.Gibson (1984), "Regression Estimates of Economic Base Multipliers for Small Communities", *Economic Geography*, Vol.60 No.3 pp.225-237.

National Statistical Office (1998), "1998 Malawi Population and Housing Census".

National Statistical Office (2005), "Household Socio-Economic Characteristics", NSO Report based on 2004/05 Integrated Household Survey.

Ravallion, M. (1987), **Markets and Famines**, Oxford: Clarendon Press.

Sen, A. (1981), Poverty and Famines: An Essay on Entitlement and Deprivation, Oxford: Clarendon Press.

Simler, K.R. (1997), "The Transition to a Market-Based Agricultural Economy in Malawi: A Multi-Market Analysis", *Research Paper*, Cornell Food and Nutrition Policy Program, Cornell University.

Steele, D.B. (1969), "Regional Multipliers in Great Britain", *Oxford Economic Papers*, New Series, Vol.21 No.2 pp.268-292.

Thiele, R. (2003), "Price Incentives, Non-price Factors and Agricultural Production in Sub-Saharan Africa: A Cointegration Analysis*", African Development Review*, Vol.15 No.2/3 pp.425-438.

Woller, G. and R.Parsons (2002), "Assessing the Community Economic Impact of Microfinance Institutions", *Journal of Developmental Entrepreneurship*, Vol.7, No.2, pp.133-150.

Websites:

http://www.doingbusiness.org/ExploreTopics/PayingTaxes/Details.aspx?economyid=118. Accessed 10th January, 2007.

http://www.nationsencyclopedia.com/Africa/Malawi-TAXATION.html. Accessed 10th January, 2007.

http://www.ideaamis.com/. Accessed 10th January, 2007.

Appendix I: The Regional Multiplier – An Introduction

An injection of cash from outside a region will have several effects depending partly upon its uses. If some of the cash is used to purchase goods or services produced within the region, this will have the effect of stimulating demand locally. So, for example, a household which received $100 of Concern Cash may choose to spend $50 of this money on farming tools produced locally. The effect is to stimulate local production, and means that the producer's income has increased by $50. The total increase in the income of the region is thus the initial $100 plus the $50 earned by the tool-maker; a total of $150 after one round of spending. There is, of course, no reason to assume that spending ends there. In turn, the tool-maker will spend his money. If he also spends half of his income locally, this will help to generate the further production of local goods and services by $25, so that the total impact on the region is $175. This continues such that the total increase in regional income is:

$100 + $50 + $25 + $12.50 + £6.25 + ….

In this demonstration, we assume that in each round of spending, 50% of the gain in income is spent locally, while the remainder of the money "leaks" from the local economy – either in the form of imports, savings or taxes. It does not, of course, have to be the case that 50% of the money is spent locally. It could be 90% or 10%, but the main aim of the multiplier is to estimate the percentage spent locally. It is an assumption of the model that a similar (the same) amount is spent locally in each round.

Mathematically, we can write this as a power series expansion:

$$\sum_{t=0}^{\infty} a \cdot z^t = a + a \cdot z + a \cdot z^2 + a \cdot z^3 + a \cdot z^4 + a \cdot z^5 + ... = a \cdot \frac{1}{1-z}$$

where *a* is the initial injection of cash, *z* represents the percentage spent in the local area and *t* is the round of spending. Writing the multiplier $k = 1/(1-z)$, the total change in income in the local area will be $k \cdot a$ or $\Delta Y = k \cdot INJECTION$.

Standard economics rewrites $k = 1/(1-MPC)$ where *z* is now the constant marginal propensity to consume locally-produced goods (*MPC*). That is, the proportion of the last dollar of income spent on local produce. This can be re-written $k = 1/(MPS + MPIMPORT + TAX)$ where *MPS* is the (constant) Marginal Propensity to Save, *MPIMPORT* is the (constant) Marginal Propensity to Import and *TAX* is the (constant) marginal tax rate so that all terms in the denominator represent leakages from the local economy.

In our example, the multiplier, k is equal to $1/1-0.5 = 1/0.5 = 2$ indicating that the total impact on regional income will be twice the initial cash injection. That is, for a $100 injection, the total increase in regional income will be equal to $200:
$\Delta Y = k \cdot INJECTION = 2 \cdot INJECTION = 2 \cdot \$100 = \$200$.

The size of the multiplier depends upon the proportion saved (or, the constant marginal propensity to save), the proportion spent on imported goods and tax – all of these representing leakages from the local cash pool. The smaller the region, the less it is likely to produce itself and the more it will have to import from outside. Thus,

the multiplier will be small in a small region, and larger in a larger region. It is thus important to define the region in which the multiplier is being considered.

Note that the multiplier assumes that the exogenous shock (in this case, the Concern Cash) is capable of stimulating the local production of goods and services. This assumes some slack in the market. If demand is already high for locally-produced tools and it is not possible to produce more, given the available resources, then the demand will either be met by imports or by price rises. The imports represent a leakage from the local economy and price rises simply represent inflation and no increased production. A similar story can be weaved for services (which are difficult to import). If demand for beer brewed locally increases but all local brewers are already working hard, then prices will increase; production will remain constant and local consumption will not increase.

There exists another possibility. Under-production may exist due to unemployment. The local tool-maker may be able to employ a colleague, or the beer-brewer take on an apprentice. Employment stimulated by the increased demand becomes a proxy for the increased production and consumption. Relatively successful attempts to estimate multipliers in this way have been made and are discussed in the short literature review in this report. One key difference is that employment in Malawi is not dichotomous (i.e. employed or unemployed), but needs to be considered as *under-employment* of individuals. Thus the impact of local consumption stimulated by the cash injection on *hours worked* will be a more appropriate measure.

Appendix II: Maize Prices in Dowa and Surrounding Districts (MK)

MAIZE PRICES IN:		DOWA	KASUNGU	SALIMA	NTCHISI	LILONGWE
2004	J	12.88	14.75	16.52	13.27	
	F	16.87	14.40	20.76	15.34	
	M	22.96	16.33	15.31	17.94	
	A	22.33	16.17	13.73	21.69	20.25
	M	21.08	15.69	15.43	17.38	18.00
	J	13.65	11.46	11.88	12.11	16.33
	J	13.45	11.20	13.12	15.61	17.68
	A	13.06	12.00	12.66	14.35	16.33
	S	15.11	12.33	18.23	14.96	16.48
	O	15.36	13.44	19.75	14.60	16.38
	N	15.42	13.53	19.22		17.53
	D	15.55	14.22	19.46	18.52	18.43
2005	J	18.75	17.59	21.10	16.07	18.33
	F	17.97	21.54	17.00	16.93	17.65
	M	18.32	21.88	17.00	17.87	18.39
	A	17.72	20.23	17.50	16.03	18.00
	M	18.89	18.21	16.95	16.18	18.08
	J	19.23	14.99	17.99	18.30	19.94
	J	19.39	16.09	20.17	18.88	23.63
	A	18.25	18.90	25.61	20.06	19.97
	S	20.47	21.50	26.03	19.48	20.25
	O	26.03	26.63	32.00	25.25	29.88
	N	26.81	35.00	31.60	31.73	33.60
	D	28.92	37.50	33.00	38.36	33.00
2006	J	30.92	43.29	47.67	38.68	33.25
	F	38.89	50.92	49.96	57.00	35.38
	M	49.25	57.71	50.15	57.06	54.00
	A	34.96	40.35	23.75	45.87	36.00
	M	25.45	26.35	22.03	25.22	20.59
	J	21.42	12.97		17.40	20.50
	J	18.97	17.13		22.21	21.86
	A	18.26	27.25		21.72	20.89
	S	17.35	30.38	25.00	21.99	21.51
	O	20.29	22.80	23.52	21.69	21.12
	N	23.68	26.75	22.25	21.99	24.50
	D	24.79	17.00	22.53	19.35	23.61

Source: MoAFS through FEWSNET Reports (http://www.fews.net/)

Appendix III: Steps for Producing SAM

The SAM allows the overall multiplier to be calculated in matrix form using the following steps.

Average expenditure of each group within the group and with all other groups is entered into a matrix using data collected from relevant market actors. Note that is assumes that marginal propensities to consume are assumed equal to average propensities to consume. Alternatively, all income elasticities are assumed equal to unity. This is an unrealistic assumption but is a common one is such analyses, and a an assumption of the basic multiplier theory.

Proportional income and expenditure is calculated by dividing each income by total expenditure for each group to find the "technology matrix", denoted **A**.

The technology matrix is subtracted from the identity matrix, denoted I. This is equivalent to (1-MPC), the denominator in the simple multiplier (see Appendix I).

The resulting matrix is inverted to obtain a multiplier matrix, **M**. This is the matrix equivalent to calculating $k=(1/(1-MPC))$. In matrix form, this can be denoted $\mathbf{M}=(\mathbf{I}\text{-}\mathbf{A})^{-1}$

The multiplier matrix gives per sector multipliers which is then multiplied by the exogenous change in expenditure (denoted **x**) given by the Concern transfers in order to find the total change in demand for each industry, denoted **y**. In matrix form, this can be written **y**=**Mx**.

When totalled, the sum of the increased demand can be compared with the cash injection to calculate the total increase in spending in the local economy, and can be used to calculate the total multiplier. So, for example, if the total increase in spending is $180, but the cash injection was $100, the multiplier is equal to 1.8 = $180 / $100.

Once the total multiplier is established, the breakdown of increased income for each sector is analysed. The total increases for each sector are summed to find the total "value added" or "bangs for your buck" of the cash injection.

Appendix IV: Calculations for Minimum Requirements Approach

The population of TA Chakhaza is 63,654. This is placed into the generated equation to find the non-basic employment for TA Chakhaza of:

E_N = $-0.1062 + 0.1318 * \log_{10} POP$
= $-0.1062 + 0.1318 * \log_{10}(63,654)$
= $-0.1062 + 0.1318 * 4.8038$
= 0.5269

The relevant multiplier, k, can is then calculated for Dowa as:

$k = 1/(1-0.5269) = 2.11$

Appendix V: Terms of Reference

Purpose:
To assist Concern Worldwide to assess, and disseminate, the full impact of their cash transfer programme, by undertaking action research on the effect and operation of the transfer in targeted communities.

Background:
Although Malawi as a whole received a good harvest in 2006 creating a national grain surplus some areas of the country experienced dry spells that damaged crops and greatly reduced the harvest, Northern Dowa was one such area. In these areas households are expected to be missing at least 30% of their food entitlement, as the poor harvest will have reduced incomes and market failures will maintain high food prices in these localities.

In 2005 to '06 Concern Worldwide piloted a Food and Cash Transfer (FACT) programme that proved to be very successful in enabling households to access their food entitlement. Building on that experience Concern proposes to implement another cash transfer piloting some of the available technology with the goal of establishing modalities that can be scaled up to the national level.

One of the programme objectives is "To better understand, demonstrate and document the market response to cash transfers in rural areas, and to draw lessons both for potential market enhancement programmes and for longer-term social protection programming." In order to meet this objective Concern would like to undertake/commission research into the socio-economic impact of the cash transfer; with specific reference on the expected "multiplier" effect of transferring cash.

Tasks:
Devise and test a methodology to quantify the extent of the economic "multiplier" effect of the cash transferred.
Devise and test a methodology to capture the social impact of the transfers; this is expected to provide qualitative output.
Undertake field survey to establish and quantify the economic impact of the programme
Suggest additional data to be captured in ongoing monitoring and evaluation.
Provide a report to programme management that will be fed into end of programme evaluation and dissemination strategies.

Output:
Document detailing the methodology used including rationale for development of all components and references.
Final report that identifies, to a reasonable degree of confidence, the extent and impact of expected "multiplier" effect. The report should also include some of the qualitative social impacts in its assessment
Provide input into the programme implementation and management during the research phase of the project.

Timeframe:
The programme will begin transferring the cash in December 2006, and will cease transfers in April 2007. Thus the ideal time for data collection will be between

January 2007 and April 2007. In order to gain a significant data set at least one month is expected to be required for field work.

Notes:
This terms of reference is aimed at academics (both students and professionals) with an interest in this area of study. Concern does not, at this time, intend to pay consultancy fees they will however provide financial assistance and support to interested parties.