Zonal structuring in the rural space economy: A case study for Ugu district municipality

Introduction

The space economy in rural areas has differentiated extensively, responding to the central pull of the industrial economy focussed in the metro cities. Wide zones of concentrated settlement have emerged and are continuing to develop around the smaller rural centres, and around rural transport nodes and transport routes that offer access to the urban sector (Cross & Harwin with Schwabe, Morris & Kekana 2000). Based on the Census in that year, more than half the rural population of South Africa had already moved into non-urban areas of densification in the countryside, with population density above 200 per square kilometer as of 1996. The share of population in rural dense areas can be expected to have risen in the intervening years.

The settlement concentration process takes place through high levels of rural-to-rural migration which are often unrecorded, as they characteristically involve local moves that do not cross provincial or administrative boundaries and therefore do not appear in official migration statistics; however, the outcomes of rural-to-rural migration moving population deeper into the developed economy are visible in the spread of peri-urban and rural dense settlements. These demographic shifts change the inherited rural settlement patterns which developed in the pre-colonial and apartheid periods into one of widening spatial integration with the developed economy, as the urban-centered zonal structure expands across previously undifferentiated rural countryside, changing the structure of settlement. For IPDM's work on migration in the space economy, the Human Sciences Research Council and University of Pretoria (HSRC/UP) team has been able to gain valuable insights from the project's Living Laboratories engagement with the planning staff of Ugu District Municipality.

Pre-existing settlement structure

The original settlement pattern of the majority African population in the rural sector was often either one of pre-colonial nucleated rural villages or proto-towns, in the north-centre and western interior of the country, or of smaller residential groups representing extended family homesteads scattered over the countryside in the eastern seaboard provinces. In either case, settlements were self-sufficient and largely autarkic based on their access to and uptake of local environmental resources, within their own very localized named community groupings. Occupation was therefore smoothly and thinly distributed; settlement was largely undifferentiated and determined by access to water, grazing and arable land at any point within the broad limits of the pre-colonial kingdoms, rather than by an active economic/demographic migration and settlement process at a national or regional level.

This broadly uniform pre-colonial, pre-industrial settlement pattern was then harshly impacted first by the colonial wars, and then by apartheid attempts at creating concentrated rural settlements. So-called 'betterment' rural spatial planning continued to be imposed into the 1980s, and had differential effects in different parts of South Africa's rural

sector, intensely affecting the Eastern Cape through villagization (De Wet 1995, De Wet 1989, McAllister 1989) but achieving less grip in KwaZulu-Natal and the interior (Yawitch 1988). The settlement pattern left behind is one of a partially concentrated countryside of poverty, where the small-scale concentrations that emerged from imposed official policies had little to do with access to the economy. By contrast, the direction of spontaneous rural-to-rural migration which overlies the imposed settlement dispensation has broadly been toward greater engagement with the national economy.

Contemporary settlement structure: Case study, Ugu District Municipality in KwaZulu-Natal
The situation at Ugu illustrates the demographic/ economic position of a South African rural district which is isolated in the regional space economy as the post-colonial farming economy declines, with impacts on settlement and migration. Under, the *Integrated Planning, Development and Modelling's* (IPDM) Living Laboratories process, representatives of the HSRC and Council for Scientific and Industrial Research (CSIR) project teams were able to attend several workshop sessions with the planning staff of Ugu District Municipality in late 2010, and to present the settlement typology for discussion with reference to Ugu. On the basis of insights provided from these discussions, it became clear that IPDM's existing 'self-development' settlement type might better be internally divided into self-development, referring to new spontaneous settlements characterized by good self-build housing, and self-upgrade, denoting established settlements improving their housing standard on their own, without planning but with significant self-investment into owner-built decent shelter.

Located on the KwaZulu-Natal South Coast and extending into the deep interior, the Ugu municipality is entirely rural, without a city or large town within its limits: the effective capital of the region is Port Shepstone, a secondary city on the coast. However, intensive population densification is taking place around Gamalakhe, a small apartheid 'homelands' town, and also widely in the countryside in all of the six local municipalities that comprise the Ugu District.

These and other formerly white coastal towns that serve the surviving farming and tourism sectors provide most of the few available jobs for the rural communities. Weakness of economic activity in the interior of the municipality results in a drift of population out of the interior and toward the coast, as well as south to north in response to the pull of the eThekwini metro region.

Economic integration with the developed urban economy of the country has been and remains low although the eThekwini metro is located close to the northern Ugu border (cf Kok et al 1996), and the local economy remains rural and agricultural, with a small amount of tourism activity, in the face of low current employment levels in the southern KwaZulu-Natal region. Household farming is in serious decline and levels of poverty in the region are severe, with a high proportion of households surviving mainly on government transfer payments (Everatt 2006; Ugu District Municipal Integrated Development Plan (IDP) 2007).

Ugu lies inside the measurable migration source zone for the eThekwini metro, while the migration attraction of Gauteng and Cape Town are weak inside KwaZulu-Natal. Largely as a result, youth out-migration from Ugu to eThekwini is very high, a concern that recurs in planning documents. This migration flow feeds largely into eThekwini's southern metro informal settlements. Though significant levels of government delivery of housing and services are taking place in Ugu, the feeling of the planning team is that few youth who leave the area are likely to return, even if metro job search is unsuccessful. A large part of the birth population of Ugu District Municipality is

therefore likely to reside in the southern metro shack areas, while some will have moved on to permanent metro housing.

Land for settlement in Ugu is not scarce in relative terms, and the planners emphasized that the municipality contains only three small and spatially restricted informal settlements. At the same time, in HSRC's several Living Laboratories conversations with the Ugu planning staff, it was reported that few areas in the municipality were now without spontaneous dense settlements. As a result, the infrastructure requirements of such dense-settled communities, which occupy land without any prior municipal planning or infrastructure delivery, were identified as the single most significant planning challenge for the region. The issue of how to address infrastructure planning into this context – of unplanned dense spontaneous settlement development taking place outside of formal channels and without official permission – occupied the attention of the planning group without any clear solution being identifiable.

The outcomes for the economic demographic of settlement are summarized in Table 1, which gives the distribution of household per capita income in Ugu by settlement type, based on the national Census-based settlement typology.

Table 1: Spatial influences on settlement: Ugu district settlement types

Ugu settlement type	*Rank order*	*Mean h/h size*	*Mean per capita income/ m*
Old traditional	1	6	R172
Self-upgrade	2	6	R263
Midzone village 8-30 km	3	5	**R397**
Old township	4	4	**R851**
Backyard structures	5	4	R232
RDP subsidy housing	6	3	R348
Inner urban shacks 0-4	7	3	R215
Outer rental	8	5	**R380**
New traditional	9	5	R159
Inner village 0-8 km	10	7	**R385**
Inner periphery shacks 8-20 km	11	5	R342
Self-development	12	6	R163
ESTIMATED OVERALL TOTAL		**4.8**	**R328**

The quantitative results for the Ugu District Municipality reflect its nature as a dense rural district isolated on the edge of the developed national economy, illustrating what the settlement structure of a dense rural district can look like (Table 1). The major urban settlement types do not appear, household sizes are large, and recorded per capita incomes average very low, at about R330 per person per month overall. The settlement distribution is also very clustered in specific type and distance categories.

Distribution of settlement in dense rural municipality
Based on the Census 2001 distribution, settlement types in the table are ranked according to projected population, with *old traditional* settlement at the head of the table as the most commonly found: old traditional settlement often dominates in rural areas that have not as yet integrated closely into the urban economy. This outlying

settlement constituency at Ugu shows large average household size at 6 members and is relatively poor, with estimated per capita household income at R172.

In second place, *self-upgrade* housing chases *old traditional*, signaling the emergence in Ugu of a significant level of aspirational housing that reflects the conceptual and physical movement of its constituency closer into the developed economy of the cities. Self-upgrade housing is a modal type for rural densification, tending to occur mainly in densifying, developing localities, while old traditional housing concentrates often, though not entirely, in remoter localities not yet densified. At Ugu these households average about the same size as the *old traditional* households, but report significantly higher per capita income at R 263, indicating greater economic engagement.

As the third-ranking category, *midzone village* settlement is found in the median spatial zone around population centres at 8-30 kilometers, oriented toward Gamalakhe, Port Shepstone or another coastal town. This category is significantly more heavily populated than the small *inner village* grouping found at 0-8 kilometers, which ranks 10th by comparison. Income levels for the inner village and midzone village categories are roughly similar at R385 and R 397 respectively, well above average for the municipality and above the level found in the *self-upgrade* areas in spite of their lower-quality housing, which may reflect relative location advantage. The *inner village* category shows population building up in lower-quality housing around population centres, with mean household size estimated at 7, larger than the old traditional category mean. No *outer village* category appears at all, suggesting that the village categories grade off into old traditional housing as distance increases.

The *old township* category has significant representation at rank 4, but its level of population in Ugu is low compared to the main rural settlement types. Households are relatively small at an average of 4 members, and, as it commonly does, this settlement category reports the highest per capita income levels recorded for the Ugu municipalities at R851.

With relatively low representation, *backyard structures* and *RDP-type subsidy housing* rank 5 and 6, respectively. Household sizes are relatively low at 4 and 3 respectively. Estimated income levels in the backyard category are low at R232 per capita, but the RDP population appears comparatively better off at R348, a fair middle income for the Ugu area. It is not easily possible to tell if these levels of income characterize the population that obtains RDP housing, or represent an improvement in economic standing after poorer households obtained subsidy houses.

Ugu's very small and sporadically distributed shack settlement population only begins to appear in the settlement distribution at rank 7, for the inner Central Business District (CBD) zone shack population. Estimated income levels for this constituency, which has a household size of 3 and should be favourably located, averaged only R215 per capita per month. This is a severe poverty level, and perhaps a reason why the informal settlements at Ugu are very small: in this spatial zone and in a weak rural economy with no strong population centres acting as economic engines, it is not clear that central-urban location at a local level translates to better earning options.

The only other shack population to appear in the distribution is the *inner periphery* category, located at 8-20 kilometers from their nearest CBD, ranking 11. This very small constituency appears to comprise older and larger households at an average of 5 members; it achieves a higher per capita income at R342 per month, higher than the very modest Ugu average of about R330 per person per month, but lower than the midzone village category in the same spatial zone. No outer-periphery or distant shacks appear in Ugu's outlying distance zones.

Serving some of the same needs as the shacks, but at a higher income level, the *outer rentals* category is also small and ranks 8 overall. Showing fairly large household size for a rental constituency at 5 on average, this constituency records an above-average but not unusually high per capita income at R380, relatively low for a rental category. The alternative category of urban rentals, which usually accommodates dense inner populations with rapid residential turnover, good employment and higher-level incomes, does not appear at all for the Ugu distribution.

Finally, the *new traditional* and *self-development* categories represent very small numbers of younger families taking up occupation of new greenfields areas. Ranking 9 and 12, these relatively younger independent households are the poorest recorded, with income levels estimated at R163 and R159 respectively. Separating from the parent household to settle in a relatively new area is understood to be difficult in a weak economy; a further implication perhaps is that few of Ugu's many densification areas may actually be new settlements. That is, many or most of Ugu's dense settlements may possibly represent established areas that are concentrating new settlement, while perhaps also often upgrading existing housing standards by self-investing without benefit of infrastructure or formal planning.

Ugu in the national space economy: implications for spatial planning
Overall, it appears that the Ugu planning staff know the population of their district well, and are aware of major dynamics. Although it lies within the migration source zone for the eThekwini metro, the district municipality is outside the metro's much narrower spatial sorting zone for settlement, which does not extend far beyond 50-60 kilometers from the CBD. Ugu then has no nearby metro-level city to generate a strong spatial sorting process at the local level, triggering intensive shack settlement and leading to the emergence of an urban rental zone. Instead, the municipality shows a clustered distribution of mainly rural settlement types, with population building up broadly across the area, although a weak zonal structure is present, with specific zonal concentrations. Rather than polarizing around local employment opportunities and generating a high level of local migration, Ugu's population may to a considerable extent be thickening in place.

As Ugu's planners are well aware, the result is not a thin rural population, but a relatively dense one without the base of economic activity to sustain it. The results are heavy dependence on government grants and on out-migration, limited by the restricted capacity of the provincial metropole to generate employment for rural-born in-migrants. At the same time, new population is moving up the coast into Ugu from the northern districts of Eastern Cape, feeding into densification and into the shack areas.

The kind of densification which Ugu experiences therefore results in a serious planning challenge with respect to infrastructure delivery, for which there is no obvious solution. Ugu's situation spotlights the need to develop new national protocols – likely to draw on the experience of informal settlements upgrading – for infrastructure delivery post-settlement, in respect of the country's numerous spontaneous self-build areas in the rural sector. The current lack of practical approaches for post-settlement infrastructure delivery into dense rural areas may represent a large emerging planning need.

At the same time, whatever is done in respect of rural infrastructure provision will need to take account of the risk of stranded infrastructure, associated with out-migration. Though most relatively new rural densification probably represents local-level rural-to-rural movement toward economic opportunity, a large part of the kind of densification present at Ugu is probably not in this category, but nevertheless represents a large and valid demographic need: attention needs to go toward developing the right approach to address this spatially-defined series of delivery

constraints. Good estimations of in- and out-migration levels down to local level will be an important factor here, and work with the Independent Electoral Commission (IEC) dataset is well positioned to make a significant contribution.

Comparisons across the space economy: other district municipalities
A wider perspective on the rural and urban space economy can be gained by comparing the Ugu results briefly with the distribution of types of settlement found in district municipalities in other parts of the country. Table 6 compares the distribution of settlement, household size and per capita income at Ugu in relation to Amathole District Municipality in Eastern Cape, Bojanala in North West, eThekwini itself in KwaZulu-Natal, and Ekurhuleni in the Gauteng City Region.

Table 2 helps to put the apparent situation at Ugu into the context of the settlement types distributions for district municipalities further south, in the western interior, and in the large-metro sector, showing economic performance in the different settlement types. Ugu's income levels are the lowest overall, and reflect serious poverty and lack of economic activity. By contrast, and perhaps surprisingly, most income levels in the same types of settlement in Amathole are somewhat higher, which may reflect relatively more economic activity and/or the scale of the civil service employment which has been channelled by central government into the Eastern Cape region (see van der Bergh et al, 2004).

In particular, Amathole's income level for formal township settlement is recorded at R1 051 per person per month, a very high level in comparative terms, and R 200 higher than the R851 recorded for Ugu's township settlement type. New townships in the Amathole municipality also record very high income estimates at R1 554, appearing to suggest an elite-level occupation of new housing stock. Likewise, while located far from its regional metropole at Cape Town, the inner village category at Amathole gives indications of being located within effective distance of employment sources, with per capita income appearing at R1 234. The average monthly per capita income across Amathole's settlement types is calculated at R606, nearly double that of Ugu.

However, income levels estimated for Amathole's shacks areas are only slightly higher than those recorded in Ugu, suggesting perhaps that the relevant local income sources are not available that far down the income distribution. If not, then the estimated higher income levels do not extend across the board: as van der Bergh et al point out, civil service jobs are available only to candidates with matric or better levels of qualification.

In its regional position Ugu municipality lies within the zonal orbit of the eThekwini metro city, which then supplies the work opportunities to Ugu citizens who move to the regional metro or work there. The levels of income reflected for the different settlement types at eThekwini are surprisingly low, and appear to indicate a saturated labour market which offers relatively low returns to migration. Township per capita incomes for eThekwini are estimated at only R592 per month, lower than Ugu, Amathole or Ekurhuleni, and further checking may be needed here. However, the general distribution of income for eThekwini's poverty-defined settlement types is also low, and the overall mean income across settlement types for the KwaZulu-Natal metro is R 366 per month, not much higher than the R 328 estimated for Ugu. Incomes in the eThekwini shack settlements are roughly on a par with Amathole, and only slightly higher than those estimated for Ugu.

On this basis, it would appear that the economic attraction factor which powers the KwaZulu-Natal regional migration system is weaker than might be anticipated. Based on the 2001 Census dataset, it is not easy to identify a
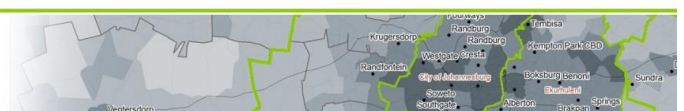
strong metro/rural income gap in KwaZulu-Natal that can exert a strong migration pull and provide migrants with rewards in terms of realized household income.

In contrast, Bojanala district in North West lies on the western edge of the massive Gauteng city region conurbation, and results suggest much stronger regional economic integration. The powerful migration pull exerted by the city region municipalities can be seen in the spatially extensive shack concentrations north and west of Tshwane, by which densification reaches far back across the border of the former 'homelands' in the Odi-Moratele area: by contrast, the only three shack areas at Ugu are very small and isolated. Bojanala also shows the second-highest levels of shack-settlement income for the table, well behind the industrial employment zone at Ekurhuleni but above the estimates for eThekwini.

Average income across settlement types at Bojanala is calculated at R718, well over double the estimate for Ugu. This level is significantly higher than that for Amathole, but is also higher than the estimated average income levels for either metro city. The estimated income for the Bojanala inner village category stands at R2580, the highest level in the table, though this spatially advantaged settlement type is numerically too small in North West to be significant.

Table 2: The space economy: household size & income for selected district municipalities

	UGU		AMATHOLE		BOJANALA		ETHEKWINI		EKURHULENI	
SETTLEMENT TYPE	Mean h/hold size	R mean per capita income	Mean h/hold size	R mean per capita income	Mean h/hold size	R mean per capita income	Mean h/hold size	R mean per capita income	Mean h/hold size	R mean per capita income
01.Old traditional	6	172.04725	5	253.2349	3	364.5686	6	251.6733	-	-
02.New traditional	5	159.81896	5	255.4168	5	314.7188	6	290.7775	-	-
03.Self-development	6	163.25838	5	1198.921	3	370.5114	-	-	-	-
04.Self-upgrade	6	263.50617	5	333.0896	5	411.3005	-	-	-	-
05.Old townships	4	851.59664	3	1051.273	3	1146.772	5	592.659	5	791.203
06.New townships	-	-	2	1554.275	3	1167.657	4	512.4843	4	616.4701
07.Mixed formal & informal	4	363.96663	2	715.2311	3	504.5195	4	315.5838	4	382.2996
08.Informal shacks, inner CBD (0-4- km)	3	215.2439	3	178.49	3	403.5261	2	554.5738	2	608.2888
09.Informal shacks, outer CBD (4-8- km)	5	213.3733	3	245.5899	2	715.7755	3	248.1326	2	510.9477
10.Informal shacks, inner periphery (8-20- km)	5	342.8303	4	273.0608	3	391.9275	4	267.4895	2	455.786
11.Informal shacks, outer periphery (20-30- km)	5	163.04421	3	334.229	3	273.9189	4	226.8276	4	432.0859
12.Informal shacks, distant (30+ km)	-	-	6	213.2267	3	249.4558	4	248.8929	2	617.4983
13.RDP subsidy housing	3	348.5459	3	416.6235	2	816.7626	5	327.2833	4	594.532
14.PHP subsidy housing	-	-	2	1229.6	-	-	5	393.3124	-	-
15.Backyard shacks	4	232.11577	3	257.565	2	563.026	4	243.4709	3	513.3642
16.Old hostels	-	-	-	-	3	1184.312	2	360.6224	1	476.054
17.Upgraded hostels	-	-	-	-	-	-	-	-	3	693.0959
18.Inner village (0-8- km)	7	385.17999	3	1234.212	3	2580.286			5	1009.033
19.Midzone village (8-30- km)	5	397.3383	5	565.5295	3	631.8429	6	396.5287	5	655.5481
20.Outer village (30+ km)	-	-	4	325.019	3	362.9601	-	-	-	-
21.Urban rental and flats (0-20- km)	-	-	-		-	-	3	612.1798	3	821.7268
22.Outer rental and flats (20+ km)	5	380.54476	4	774.4394	2	812.0896	-	-	-	-
23.Mixed urban rental	2	1930.271	3	729.6498	2	1100.182	4	378.3923	3	810.0351
MEAN VALUE	**5**	**328**	**3.65**	**606**	**2.95**	**718**	**4**	**365**	**3.25**	**624**

It would appear that Bojanala occupies a very strategic location in the zonal structure of the national space economy, and it appears to be pulling and channelling significant flows of in-migration coming in from the poor western zones of North West province; this kind of densification is distinct from that at Ugu, in that it is powered by economic

drivers rather than mainly by natural increase in a partly stranded population cut off from the developed national economy. It is possible that settling in the inner spatial zones at Bojanala may offer as good or better earning opportunities to settling in Gauteng itself, as well as much easier access to land and services.

Overall, the results presented in Table 2 would appear to go some way toward explaining and confirming the zonal structuration of the national space economy for the majority poverty population in South Africa. Falling into place for two fairly distinct and very different regional migration systems, the pattern of income levels clarifies the ways in which the Gauteng conurbation dominates migration and population movement for the whole country. At the same time, the income estimates in respect of the eastern coastal migration system are disturbing, the more so in respect of the large rural-to-urban migration flows which are thought to be likely for the eThekwini municipality in the next 15-20 year period.

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