

## FACTORS AFFECTING MORTGAGE LOAN REPAYMENT BY NEW FREEHOLD GROWERS IN KWAZULU-NATAL

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### Abstract

The average financial performance of emerging commercial farmers (now called New Freehold Growers or NFGs) in the South African Sugar Industry was below that of large-scale commercial farmers during 1997-2007. Given that this trend raises concerns about the long-term viability of NFGs, this paper identifies factors that distinguish between successful, less successful and unsuccessful NFGs using a stratified random sample of 96 NFGs in KwaZulu-Natal (KZN) surveyed during July-November 2008. These NFGs were classified according to whether their mortgage loans were current (successful), in arrears (less successful) or in the process of legal action (unsuccessful). Student *t-tests* indicate that in terms of common differences, successful NFGs had *statistically significantly* larger farms (average annual gross farm income over two times greater than less successful, and over three times greater than unsuccessful, NFGs), were more solvent (average debt:asset ratio of 0.31 versus 0.61 and 0.95 for less successful and unsuccessful NFGs, respectively) and annually replanted more of their sugarcane area (mean of 7.15% compared to 3.39% and 0.76% for the other two groups, respectively). Unsuccessful NFGs also had less personal contact with some industry role players. These results suggest that (1) policy makers can promote the viability of NFGs by facilitating the transfer of adequate size farms (proxied by annual gross income); and (2) potential NFGs need to manage leverage levels and implement replanting schedules in line with industry norms. New sugarcane farmers are also encouraged to build relationships with industry role players to obtain key industry information and to learn from their financial and production experience.

*Keywords:* sugarcane, mortgage loan repayment, emerging farmers, farm size, solvency, management

### Introduction

After democratic elections in South Africa in 1994, the new South African (SA) government produced a land reform policy which was intended to redress (i) the forced removals of black people<sup>1</sup> from land; and (ii) the denial of access of black people to land markets. This land reform policy has three tiers - land restitution, land tenure reform and land redistribution - which collectively aim to transfer 30% of white-owned commercial farmland to previously disadvantaged individuals (PDIs)<sup>2</sup> by 2014 (Ministry of Agriculture and Land Affairs (MALA), 2001). The SA Sugar Industry is committed to transformation in land ownership and supports the SA government's target to transfer 30% of freehold sugarcane land to PDIs

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<sup>1</sup> Reference to race group in regard to land reform in South Africa is unavoidable, given that individuals were previously excluded from land markets because of racial segregation.

<sup>2</sup> Previously disadvantaged individuals (PDIs) are defined in this study as people who were previously excluded from land markets in South Africa because of racial segregation.

by 2014 via the land market under the willing buyer/willing seller principle (voluntary transaction between a seller and a buyer) (Thomson and Gillitt, 2007). To assist the industry in supporting this target, an innovative financing scheme was introduced in 1996 to help redistribute commercial sugarcane farmland owned by two KwaZulu-Natal (KZN) based sugar millers to PDIs.

These sugar millers sold farms to aspirant black farmers (called 'medium scale farmers') in KZN who had limited capital to buy land and thus had to borrow most of the funds required for purchase. These highly leveraged farmers were likely to face liquidity problems as the compensation required by lenders differs from the form of returns that the farmers would earn on their sugarcane land (Mashatola and Darroch, 2003). Borrowers have to make annual cash repayments (principal plus interest), the interest component of which is part real return and part inflation premium to compensate lenders for the expected loss in purchasing power of their debt claim. However, an investment in farmland typically has relatively low annual current operating (cash) returns (excluding capital gains due to appreciation of the value of the land). The result is a *financing gap* as the annual cash operating returns to land in the early years after purchase fall short of the annual interest charge (and the annual principal is still to be paid) (Barry *et al.*, 1995). To help overcome the expected cash flow problems, the two sugar millers provided 18% of the capital from land sold to the medium-scale farmers at market-related prices to Ithala Development Finance Corporation (now Ithala Bank) to fund a finite interest rate subsidy on mortgage loans that Ithala made to these farmers to buy the land. This generated a sliding scale of interest, starting below but gradually rising to the market interest rate after seven years as farm earnings were expected to improve and subsidy funds were used up (Simms, 1996).

New black farmers that enter the SA Sugar Industry are now called 'New Freehold Growers' (NFGs) and do not necessarily receive an interest subsidy. The NFGs are defined as PDIs who have acquired freehold land for commercial sugarcane production (typically about 100 ha) (personal communication<sup>3</sup>). In recent years, there has been an increased rate of ownership changes from white large scale growers (LSGs) to PDIs (Thomson and Gillitt, 2007). Since the graduated payments were only available for aspirant black farmers that purchased land from the sugar millers, many of the NFGs who have bought farms from LSGs used loans from commercial banks and other financial institutions. The last group of NFGs that received an interest rate subsidy was financed in 2004, possibly because (1) the millers have reached their threshold levels for selling off land; (2) government grants are now available to buy land (particularly LRAD<sup>4</sup>); and (3) pending land restitution claims are hindering the millers from transferring any more land. If a grower qualified for a LRAD grant, the millers did not offer the interest rate subsidy.

The average financial performance of emerging black commercial farmers (including NFGs) in the SA Sugar Industry was below that of LSGs during 1997-2007 (real average annual net returns per hectare of R390 versus R3075 in 2007 Rand) (personal communication<sup>5</sup>). This raises concerns about the long-term viability of current and future NFGs which is strategic in helping the SA Sugar Industry to achieve transformation targets and maintain the support of

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<sup>3</sup>Armitage, R (2008). Director, Economic Services, South African Cane Growers' Association (CANEGROWERS), Mount Edgecombe, South Africa.

<sup>4</sup>Land Redistribution for Agricultural Development programme (see MALA, 2001).

<sup>5</sup>Gillitt, C (2008). Research Economist, South African Cane Growers' Association (CANEGROWERS), Mount Edgecombe, South Africa.

the SA government (personal communication<sup>3</sup>). The aim of this study, therefore, is to identify what factors contribute towards the successful performance of NFGs. Such information can suggest grower and farm characteristics and/or industry structures to target to try and improve the viability of current and future NFGs. Given that the NFG scheme cannot operate without external finance, success in this study is measured by the mortgage loan repayment status of the NFGs (personal communication<sup>3</sup>). Growers are classified according to whether their loans are current (successful), in arrears (less successful) or in the process of legal action (unsuccessful). Financiers can use this information to help screen borrowers and potentially reduce the number of loans in arrears and/or default.

The next section reviews annual trends in real NFG farm incomes during 1997-2007, and compares real NFG costs and revenues per hectare with those of the LSGs. Then follows the data sources and research methods used in this study, and a section that reports the results of Student *t*-tests (Rayner, 1967) which identify sample mean values for farm and farmer characteristics that are statistically significantly different between the three groups of NFGs. A concluding section considers some management and policy implications of the results.

### Recent trends in New Freehold Grower net returns

During 1997/98-2006/07, the NFGs had an average real (2007=100) gross income per hectare of R9882 compared to the LSGs' R11 857. The NFGs have also experienced higher average real costs per hectare (R9492) versus the LSGs (R8782) over the same time period (personal communication<sup>5</sup>). This has resulted in the NFGs having much lower net returns per hectare than the LSGs. Figure 1 shows that the NFGs had average annual real gross incomes that were just sufficient to cover their production costs (operating expenditure plus loan interest), excluding returns to management and risk. If an opportunity cost of capital and opportunity cost of management time were added, the NFGs would on average make an annual economic loss (part of the required return to management and risk is being used to finance interest payments). This is a major cause for concern in the SA sugar industry, which is committed to promoting the long-term viability of current and future NFGs.

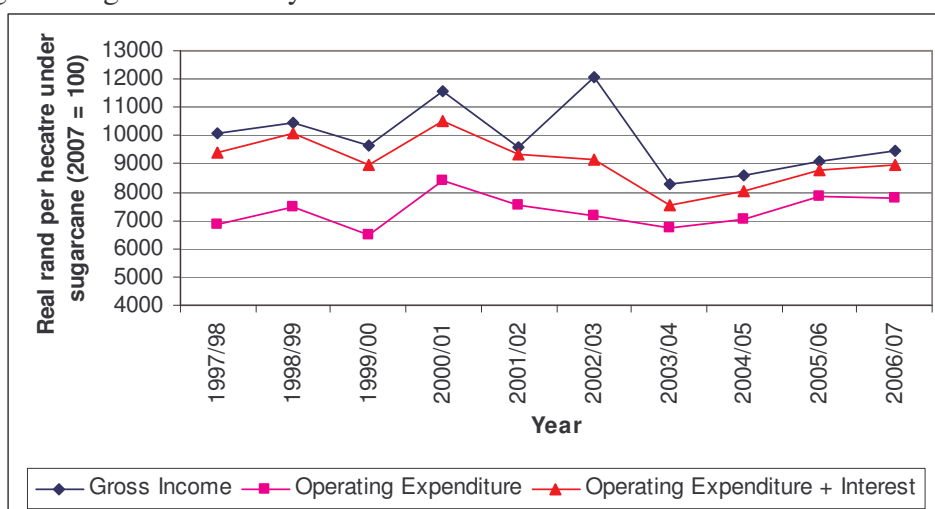


Figure 1. Real Gross Income and Operating Expenditure<sup>6</sup> per hectare under sugarcane for New Freehold Growers, KwaZulu-Natal, South Africa, 1997/98-2006/07

Source: personal communication<sup>5</sup>.

<sup>6</sup>Operating expenditure = labour + chemicals + fertiliser + fuels and lubricants + mechanical maintenance + fixture maintenance + services + administration + licences + cane transport + sundry (mainly contractors).

### Data sources and research methods

A survey questionnaire designed to identify potential socio-economic, farm/farmer specific and industry factors that may affect the NFGs' success was administered in the KZN sugarcane growing regions during July-November 2008, after first testing the clarity of the questions and statements with a pilot group of seven NFGs. Personal interviews were conducted with the 96 respondent's selected using stratified random sampling of the population of 291 NFGs by dividing them into mutually exclusive subgroups or strata that were as homogenous as possible given the available information (Barnett, 1991). Three strata were used to classify the 291 NFGs by geographic region - North Coast, South Coast, and Midlands.

A fixed, constant proportion (sampling fraction) of 33% was selected from the NFGs in each of the three strata to make up the stratified random sample. The researchers purposely chose this sampling fraction, which exceeded the 15% that would be sufficiently representative for multivariate analysis, in order to allow for potential non-response by some selected NFGs and the relatively high search costs of collecting data from spatially dispersed sampling units (Barnett (1991); Ramproop (2003) and Lyne (2003) cited by Clover and Darroch, 2005). Sixty-six respondents farmed on the North Coast, 23 were from the South Coast, and seven owned farms in the Midlands region of KZN. Information on the status of NFG mortgage loans was obtained from the relevant financing institutions: 74 sample NFGs were financed by Ithala Bank, 11 by Land Bank, nine by FNB and two by ABSA Bank.

This paper uses a comparative descriptive analysis to estimate statistically significant differences between the characteristics of the successful, less successful and unsuccessful NFGs. Statistical differences were analysed using Student *t-tests* with significance measured at the 1%, 5% and 10% levels. The results identify grower and farm characteristics that affect NFG loan repayments, and thereby help lenders to screen borrowers and potentially reduce the number of loans in arrears and/or default. The results can also help identify grower/farm characteristics or industry structures that need to be targeted to promote the viability of current and future NFGs.

### Results

Seventy-five per cent (or 72) of the sample NFGs were current on their loan repayments (successful), 13.5% (or 13) were in arrears (less successful) and 11.5% (or 11) had been handed over for legal action (unsuccessful). Data presented in Table 1 show the mean values of farm and farmer variables for the successful and unsuccessful NFGs in the study sample, and the associated estimated t-values. For the sake of brevity, similar tables for successful versus less successful, and less successful versus unsuccessful NFGs are not presented. Rather, the major differences between these groups are discussed, together with the differences estimated in Table 1. Successful NFGs, on average, are slightly younger than unsuccessful NFGs (50 years versus 52 years), although these differences were not statistically significant (the same result applied to less successful NFGs who had an average age of 52 years). There were also no significant differences between the mean years of education per farmer in the three groups, with an average of 11 years across all three groups.

**Table 1. Comparison of mean values of farmer and farm variables for successful and unsuccessful New Freehold Growers (n = number of cases), KwaZulu-Natal, South Africa, 2008.**

New Freehold Grower variables	Successful		Unsuccessful		t-value
	n	Mean	n	Mean	
<b>Farmer and farm characteristics</b>					
Age (years)	72	49.60	11	52.18	-0.821
Education (years)	72	11.08	11	11.09	-.008
Sugarcane farming experience (years)	72	12.89	11	2.00	7.683***
Financial management experience (years)	72	2.18	11	0.00	3.199**
Management experience (years)	72	3.69	11	0.46	3.423***
Time allocated to farming (hours/day)	72	7.17	11	8.10	-1.050
Number of meetings with financier	72	4.31	11	1.83	2.039*
Number of meetings with CANEGROWERS	72	12.14	11	1.91	2.585**
Number of meetings with miller	72	13.51	11	5.00	1.923*
Number of meetings with SASRI	72	12.51	11	4.14	1.802*
Average annual gross farm income (R)	72	1110820.00	11	336363.60	10.907***
Annual off-farm income (R)	72	145683.3	11	4036.36	1.041
Annual spouse off-farm income (R)	72	36142.65	11	11236.36	1.407
Debt: asset ratio	72	0.31	11	0.95	-10.288***
Working capital: gross farm return ratio	72	0.26	11	-0.44	4.185***
Asset: Turnover ratio	72	0.36	11	0.27	1.581
Monthly living expenses (R)	72	10037.50	11	5381.82	2.024**
Annual area replanted (% Area under cane (AUC))	72	7.15	11	0.76	11.200***
Soil sample taken at replanting (Yes = 1, No = 0)	72	0.92	11	0.55	2.308**
Harvest-to-crush delay (hours)	72	40.34	11	50.29	-0.917
<b>Production record keeping system</b>					
Own manual system (Yes = 1, No = 0)	72	0.89	11	0.82	0.665
Own computerized system (Yes = 1, No = 0)	72	0.08	11	0.00	2.541**
Specialized computerized system (Yes = 1, No = 0)	72	0.13	11	0.00	3.185**
External Consultant (Yes = 1, No = 0)	72	0.00	11	0.00	0.00
No formal system (Yes = 1, No = 0)	72	0.04	11	0.00	0.683
<b>Financial record keeping system</b>					
Own manual system (Yes = 1, No = 0)	72	0.46	11	0.09	3.388**
Specialized computerized system (Yes = 1, No = 0)	72	0.06	11	0.00	0.795
CANEFARMS (Yes = 1, No = 0)	72	0.44	11	0.73	-1.760*
External Consultant (Yes = 1, No = 0)	72	0.58	11	0.27	1.946*
No formal system (Yes = 1, No = 0)	72	0.00	11	0.00	0.00
<b>Risk management strategies commonly used</b>					
Enterprise diversification (Yes = 1, No = 0)	72	0.14	11	0.09	0.432
Off-farm investment (Yes = 1, No = 0)	72	0.62	11	0.09	4.903***
Fire insurance (Yes = 1, No = 0)	72	0.93	11	0.73	1.411
Keep cash reserves (Yes = 1, No = 0)	72	0.82	11	0.09	5.902***
Keep credit reserves (Yes = 1, No = 0)	72	0.78	11	0.27	3.671***

Note: \*, \*\*, \*\*\* denote statistically significant at the 10%, 5% and 1% levels of significance, respectively.

Previous experience in agriculture and financial/business management can increase the likelihood that an NFG can more readily adapt to the challenge of managing a commercial sugarcane farm. Dyke *et al.* (1992) highlight the importance of a positive link between owner experience and small firm success, and also that previous experience in general management and management in the industry within which an individual currently operates, are important.

Successful NFGs had an average of 13 years experience in sugarcane farming compared to two years for the unsuccessful NFGs, and eight years for less successful NFGs. These differences were statistically significant across the three groups at the 1%, 5% and 5% levels, respectively. Successful NFGs also had more experience in a general management position and in financial management, these differences being statistically significant when compared to the unsuccessful NFGs.

Successful and less successful NFGs had relatively more contact with financiers, extension staff and other industry role players than did the unsuccessful NFGs. Successful NFGs on average met their financiers once every three months compared to once every six months for both the less successful and unsuccessful groups (these differences were statistically significant at the 10% and 5% levels, respectively). The successful NFGs also met a mean 12 times per annum with CANEGROWERS support staff compared to two times for the unsuccessful group (significantly different at the 5% level) and eight meetings for the less successful group. There was a statistically significant difference at the 10% level between the annual number of meetings with sugar milling company employees for the successful (14) and unsuccessful (five) NFGs, while the less successful group met with mill staff on average 10 times per year. Annual contact with South African Sugarcane Research Institute (SASRI) extension staff was also statistically significantly different at the 10% level between the successful (about 13 meetings) and unsuccessful NFGs (four meetings), versus an average of nine meetings for the less successful NFGs.

Statistically significant differences in annual gross farm income (GFI), a proxy for farm size (Barry *et al.*, 1995), occurred between all three sample groups of NFGs. Successful NFGs had an average annual GFI of R1 110 820 that was over three times greater than that for unsuccessful NFGs (R336 364) (statistically significant difference at the 1% level). The less successful NFGs had an average annual GFI of R484 615 that was statistically significantly different to the successful and unsuccessful group values at the 1% and 5% levels, respectively. Grower annual off-farm income and spouse's annual off-farm income were not statistically significantly different between the three groups. The average annual figures for the successful, less successful and unsuccessful NFGs were R145 683 and R36 143, R7146 and R22 267, and R4036 and R11 236, respectively.

The successful NFGs in the sample were on average more solvent than their less successful and unsuccessful counterparts, and hence more likely to meet long-term debt commitments. Successful NFGs had a statistically significantly lower mean debt:asset ratio (0.31) compared to the less successful (0.61) (1% level) and unsuccessful (0.95) (1% level) NFGs, while the difference between the mean ratio for the less successful and unsuccessful NFGs was statistically significant at the 5% level. Although the leverage norm varies substantially across farm businesses, the successful NFGs were on average within the maximum debt:asset ratio of 0.50 or lower that is usually recommended by financiers (see Barry *et al.*, 1995: 111). The successful NFGs were also relatively more liquid and hence better able to meet short-term debt commitments, as shown by the mean working capital:gross farm return ratio (WCTFR) [(Current assets – Current liabilities)/Annual gross farm income]. This ratio gives the amount of funds available to purchase inputs and inventory items after the sale of current farm assets and payment of all current liabilities. The successful NFGs had a mean ratio of 0.26 versus the less successful and unsuccessful group WCTFR mean ratios of -0.23 and -0.44, and these differences were statistically significant at the 1% and 5% levels, respectively. The latter ratios for the less successful and unsuccessful groups were statistically significantly different at the 10% level. The successful NFGs also had statistically significantly higher monthly

living expenses (R10 038) compared to the less successful (R5 654) and unsuccessful groups (R5 382) at the 5% and 1% levels, respectively. These differences in living expenses were largely attributed to the successful NFGs spending relatively more on education and medical insurance for their dependents.

Plant crop establishment is an important aspect of sugarcane husbandry and management. Newly replanted fields increase the likelihood that the production potential of the farm is maintained (personal communication<sup>7</sup>). The more productive the farm business, the more likely profitability will increase (Miller and La Due, 1989). On average, over the last five years, successful sample NFGs replanted 7.15% of their area under cane (AUC) annually. This figure was about two times greater than the less successful NFGs (3.39%) and almost 10 times greater than the unsuccessful NFGs (0.76%), these differences being statistically significant at the 1% level between all three groups. Stranack (personal communication<sup>7</sup>) also emphasised the importance of soil health in maintaining the production potential of a farm, and hence the need for soil sampling and whole cycle fertiliser advice. The use of whole cycle soil sampling was significantly different at the 5% level between successful and unsuccessful NFGs, with 92% of the successful group adopting this management practice compared to 55% of the unsuccessful group. Reducing the harvest-to-crush delay of sugarcane can considerably reduce the loss of recoverable sugar caused by cane deterioration and hence increase grower incomes (Barnes *et al.*, 1998). No statistically significant differences were found between the three groups for harvest-to-crush delay, although the successful sample NFGs had a lower mean of about 40 hours.

The type of record keeping system adopted by a farmer can indicate the amount of time and importance the farmer places on production and financial management (Gloy *et al.*, 2002). Farmers who either keep their own records, or outsource their record keeping, may generate greater profits than those who do not keep records. Farmers who use a computerised record keeping system rather than a manual record keeping system may be able to allocate more time to analysis of their records and focus on turning their data into profitable information. Most sample NFGs had their own type of manual production record keeping system in place, and hence no significant differences were found when comparing the three groups. However, there were statistically significant differences between successful and unsuccessful NFGs in the use of their own computerised production record keeping system (e.g. Microsoft Excel spreadsheets) at the 5% level. While there was no significant difference between the successful NFGs and less successful NFGs in the use of such a system, the successful NFGs were statistically significantly more likely (at the 5% level) than the less successful NFGs to adopt specialised software such as CanePro or Plan-a-Head. Of the 96 sample NFGs, 39 had some form (either manual or computerised) of financial record keeping system in addition to the bookkeeping services they obtained from CANEFARMS or an external consultant. Thirty-three of these NFGs were classified as successful, five as less successful and only one as unsuccessful. Own financial record keeping was statistically significantly different between successful and unsuccessful NFGs at the 5% level, and between the less successful and unsuccessful groups at the 10% level.

Risk (income variability) is an essential feature of the production environment and cannot be avoided when addressing most economic problems (Moschini and Hennessy, 2001). Farmers may employ risk management strategies to reduce their exposure to risk, transfer risk outside of the farm business or improve their ability to bear risk (Barry *et al.*, 1995). The 96 sample

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<sup>7</sup>Stranack RA (2007), SASRI Regional Extension Officer: North Coast Region, Umhlali, South Africa.

NFGs were asked whether or not they commonly used the following risk management strategies: enterprise diversification, off-farm investment, insurance against fire, keeping cash reserves and holding credit reserves. Since most of the sample NFGs only farmed sugarcane, enterprise diversification was not statistically significantly different between the three groups. Mean off-farm investment was statistically significantly higher at the 1% level for successful compared to unsuccessful NFGs, and at the 5% level for successful versus less successful NFGs. Insurance against fire was made compulsory for most NFGs by their respective financiers and, therefore, no statistically significant differences were found between the groups. Fifty-nine successful NFGs, 11 less successful NFGs, and one unsuccessful grower in the sample kept cash reserves to manage risk, with the former two groups statistically significantly more likely (at the 1% level) to practice this strategy compared to the unsuccessful group. Fifty-six successful NFGs, 11 less successful and three unsuccessful NFGs had access to credit reserves (e.g. overdraft), with the former two groups again statistically significantly more likely (at the 1% and 5% levels, respectively) to have such access than the latter group.

### Conclusion

The successful NFGs in the representative study sample on average had more experience in farming sugarcane, larger farm sizes (proxied by annual gross farm income) and greater solvency and liquidity than the less successful and unsuccessful NFGs. Highly geared NFGs who operate smaller-sized farms are less able to benefit from economies of size and take advantage of spreading their fixed costs over more units of farm output. Hence, farm size and debt levels seem to be important factors that industry role players, policymakers and financiers must consider in order to promote the viability of current and future NFGs. Those NFGs with more agricultural experience were probably better able to adapt to the challenges of managing their own farms and this factor could, therefore, be used as a future selection criterion for aspirant NFGs. For example, such NFGs may more readily adopt the industry recommended good farm management practices of annual sugarcane area replanting and whole cycle soil sampling as they are more aware of the importance of these practices and better able to perform these tasks.

The sample successful NFGs also placed relatively more emphasis on computerized record keeping systems that can save time in conducting production and financial analyses to improve farm profitability. The successful NFGs on average had some form of their own financial record keeping system in addition to the services they received from their bookkeepers. This may point to a need for unsuccessful and new future NFGs to undergo some form of financial management training to promote farm viability. The successful NFGs were also better suited to cope with risk (income variability) as they used more risk management strategies than unsuccessful NFGs, in particular having off-farm investments and keeping cash and credit reserves. These principles could also be stressed in financial management training for current and future NFGs. Less viable and aspirant NFGs could also be encouraged to build business relationships with their financiers and industry support staff, as successful NFGs tended to have relatively more contact with these institutions. An area for future research would be to develop a statistical model of key characteristics that would classify future NFGs into potential loan repayment categories. This information could assist industry role players and financiers to improve the likelihood of selecting viable future NFGs and to better screen potential borrowers.

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