A case study on farm labour substitution in South Africa

by Jannie Rossouw*

Abstract

This paper reports a case study on labour substitution by a small-scale farmer on his farm in the Western Cape Province of South Africa that has been owned by descendants of the same family since the early 1800s. Production techniques used on the farm have moved from labour-intensive to capital-intensive. The first step towards mechanisation was taken early in 1988, when some of the farm workers did not return after their annual holidays and before the harvesting season. One of the decisive reasons for the change in production techniques was a labour strike during the harvesting season in 2000.

An analysis of gross income and production costs in 2012/13, based on capital-intensive production, compared to assumed costs if the labour-intensive production techniques of 1984/85 had been retained, shows an annual saving of R95 101 (19,5%) in comparative production costs. Moreover, capital-intensive production protects the farm against the danger of strikes and therefore reduces production risks considerably.

This research raises questions about (i) the morality of capital-intensive production; (ii) the full cost of labour, compared to the full cost of capital, when the risks of unreliable labour and of labour strikes are taken into consideration; and (iii) the risk of land expropriation.

Key words: *capital intensity, farming, grapes, labour cost, land expropriation, strike action, wine*

1 Introduction[1]

This paper reports a case study on labour substitution by a small-scale farmer on his farm in the Western Cape Province of South Africa. The period covered by the case study commenced on 15 March 1841. On this date Messrs TC Botha and EG Jordaan were granted all rights to the farm in the Worcester district known in Dutch as *Aan de Groote Vlakte* (translated directly this means *Adjacent to the Great Plains*) (*Worcester Quindrents*, as quoted in Kok 1987:7). However, Kok (1987:6) shows that Botha and Jordaan obtained the use of the land as early as 3 November 1835, but then as part of a larger farm known as *Groote Vlakte.*

Aan de Groote Vlakte measured 1 198 morgen and 192 square yards (some 1 000 hectares) at that time. On 22 March 1844 the farm was divided between Botha and Jordaan. Botha's part of the farm, which measured some 600 hectares in 1844, was subsequently divided into a number of farms to provide a livelihood for his offspring

* Prof Jannie Rossouw is the Head of the School of Economic and Business Sciences at the University of the Witwatersrand.

Correspondence to: Prof J Rossouw, Head: School of Economic and Business Sciences, University of the Witwatersrand, P/Bag X3, Wits, 2050. E-mail: jannie.rossouw@wits.ac.za.

over the next five generations. Only one of these farms, *Swartrivier* (*Black River* or *Dark River*) is still owned by a direct descendant of Botha's, Mr AB Rossouw.[2] All the other descendants having subsequently sold their farms.

The rest of this paper is arranged as follows: Section 2 demystifies the subject of wine farming. Section 3 reports developments at *Swartrivier* since it was inherited by the current owner. Section 4 deals with the economics of *Swartrivier*. Section 5 deals briefly with security issues and political uncertainty on South African farms. Conclusions and topics for further research follow in section 6.

2 Demystifying wine farming

Swartrivier is a working farm that provides a livelihood for the current owner and his family and for the workers on the farm and their families. The farm produces grapes that are sold to a local wine cellar (a winery producing wine from harvested grapes) where they are turned into wine. The wine produced by the cellar is sold mainly to the wholesale trade to be marketed under various trademarks in South Africa and internationally (Interviews with Mr AB Rossouw).

The farm produces grapes from vineyards and not wine from vineyards, and should therefore be described as a *grape-producing* farm with vineyards. This is the first myth to be debunked. In the Western Cape one only finds grape farms, although the farms are generally referred to as *wine* farms (see for instance the references to *wine lands* by Biermann 1971:39). There is a Cape Winelands District Municipality (www.capewinelands.gov.za) in the Western Cape Province of South Africa, and the term "Winelands" appears in book titles, as in *Cape winelands cuisine* by Van Deventer-Terblanche (Van Deventer-Terblanche 2011).

The term "wine farms" has a more evocative ring than "grape farms". Non-existent wine farms can even be referred to as wine *estates* (see for instance Hughes, Hands & Kench 1992:113; Van Deventer-Terblanche 2011). Grapes are grown on farms, and not wine. The grapes also have other applications, such as the manufacture of grape juice, spirits or vinegar. However, whereas it sounds perfectly acceptable to refer (incorrectly) to a *wine* farm, it is practically unthinkable to speak of a *grape juice* farm, a *spirits* farm or (heaven forbid) a *vinegar* farm.

The second myth is romanticism about farms and farming in the Western Cape. Farms in this area often evoke an image of gabled whitewashed Cape-Dutch residences with wooden sash windows and louvres (*Die verhaal van wyn* [S.a.]:unnumbered pages, beginning of chapter 2). The romantic stereotyped image of these farms includes huge oak trees, with people relaxing in chairs sipping wine, often in or in front of these gabled Cape-Dutch homesteads (*Die verhaal van wyn* [S.a.]:unnumbered pages, chapter 6). Only some 7 per cent of farms that produce grapes can boast habitable Cape-Dutch homesteads (see e.g. Fransen & Cook 1965).

In reality the majority of grape farms have ordinary homes in no particular architectural style, built in the main during the previous century when better agricultural practices and improved irrigation made smaller grape farms economically viable (Interviews with Mr AB Rossouw). Currently there are some 3 600 farms producing grapes for the production of wine (VinPro [S.a.]). These are working farms whose owners till the soil for their livelihood. A romantic existence, akin to that enjoyed by leisured landowners in some British or European countries hardly exists at all for full-time farmers. A successful grape farm supporting a family and workers is sheer hard work, not a romantic dream.

3 A description of *Swartrivier*[3]

This section describes developments on the farm *Swartrivier* after Rossouw, the current owner, started farming there on 1 April 1984. At that time grape farming was subject to production quotas imposed by the KWV[4] the control board for the industry, a matter alluded to below. The analysis in this section and the next section may be marginally incomplete, as the owner's house along with certain records burned down on 7 February 2012 owing to an electrical fault.[5] Sufficient information could nevertheless be obtained from secondary sources (where necessary) to ensure meaningful comparisons.

In 1984 the farm comprised 31 hectares (ha) in total, of which 22,5 ha were under vineyards. An additional 2 ha, previously used as a lucerne paddock, was planted in 1985, thereby increasing the area under vineyards to 24,5 ha. At the time it was a labour-intensive farm. In the ensuing years capital-intensive rather than labour-intensive farming practices were adopted, as is shown below.

The owner purchased an additional 4 ha (including a road and a stream) from a neighbour in 1992, of which 3 ha were suitable for cultivation. A pine plantation comprising 0,2 ha was removed and planted, and an old cornfield measuring 0,3 ha was also put under vines. This increased the total area of land under vines to 28 ha, the current production size of the farm. The rest of the land is accounted for by the farmyard, two sheds, housing for labourers, farm roads between the vineyards, two public roads on the farm and a stream running through the farm.

The owner also purchased an additional KWV production quota for the farm to ensure that the land that had been added to the farm could be planted, harvested and sold for wine production. The subsequent abolition of production quotas in 1992 (Bezuidenhout 2014:25) rendered this investment worthless. A change in the regulatory environment had a very direct and negative financial impact on the farm owner's financial position.

The owner of the farm had to choose between specialising in grape production only, or diversifying risk by using some lands for planting deciduous fruit. Expanding into deciduous fruit would limit the risk of exposure to grapes produced for wine production only. However, given the small scale of production on *Swartrivier*, the owner concluded that the cost of the risk of not diversifying was less than the cost of the capital investment required to diversify into other produce. Capital equipment used in grape production cannot be used for the production of deciduous fruit and the owner is still of the opinion that such an investment is not justified, given the economies of scale that can be achieved by producing grapes only. Moreover, the production of deciduous fruit would require the development of additional marketing channels (Interviews with Mr AB Rossouw). The owner's assessment is that the cost of the risk of non-diversification is lower than the capital cost of diversification, as cost-efficient diversification in agriculture normally implies that the diversified product should comprise either 25 per cent of the farm's productive size or 25 per cent of the farm's turnover (Interviews with Mr AB Rossouw). Owing to the small size of *Swartrivier*, the achievement of either of these objectives would require substantial capital investment in alternative production equipment, with limited scope for economies of scale in alternative production.

The objective is to plant vineyards yielding the highest return per hectare, but the choice of cultivar is influenced by the characteristics of the actual land planted. It is also necessary to plant different cultivars to cater for changes in taste (e.g. the consumer preference for red or white wine over time, as vines remain in production for some 25 years once planted). Moreover, a farm should be planned in such a way that the

harvest ripens over the total production season (in the main early February to end March, with limited harvesting late in January and early in April), as capacity constraints (harvesting and cellar capacity) do not allow for the total harvest to be brought in over a shorter period.

4 The economics of *Swartrivier*

In the 1985 harvesting season (the production season from 1 April 1984 to 31 March 1985 and the current owner's first harvest) the farm produced 465 tonnes of grapes, which were sold to a wine cellar. During the production season the owner employed twelve labourers on a permanent basis and periodically used seven female labourers, who were married to the permanent labourers. This labour force was supplemented by an additional four temporary labourers during the peak harvesting season (February and March).

Labour on a small farm like *Swartrivier* should be understood in a broader context. Labourers live in labourers' cottages provided by the owner and located some 80 metres from his own home. The implication is that his labourers are his permanent responsibility. In other industries labourers live far away from their employers; in this instance they are the immediate neighbours of the employer. This implies that any unusual activities such as childbirth or domestic violence involve the owner as the first line of support or arbiter in the absence of a justice of the peace.

At the time the wage rate was R5,50/day (Interviews with Mr AB Rossouw). The wages of farm workers were determined by the forces of supply and demand in 1984/85, as no sectoral wage determinations for farm wages were in force at that time (see Standing, Sender & Weeks 2000; OECD 2006). The wages were supplemented by additional expenditure, for example on protective clothing and workmen's compensation fund payments.

Total wages paid for the 1984/85 production and harvesting period are summarised in Table 1. After adjustment for inflation from 1984/85 to 2012/13 in terms of the increase in the consumer price index (CPI), the official measure of inflation (Statistics SA [S.a.]), the wage would have increased from R5,50/day to R55,00/day by 2013.

Table 1
Wage bill for *Swartrivier*, 1 April 1984 to 31 March 1985

Class of labourer	Rate per day	Number of days per annum	Total (R)
12 permanent	R5,50	250	16 500
7 female temporary	R5,50	125	4 813
4 temporary	R5,50	42	924
Rations*	N/A	N/A	6 000
23 total			28 237

* Includes aspects such as food, protective clothing and workmen's compensation fund payments.

Source: Interviews with Mr AB Rossouw

The weighted average price per tonne of grapes in 1985 was R225. This implies that the wage of one labourer for one year (250 days per annum at R5,50/day = R1 375) was equal to 6,1 tonnes of grapes.

Calculating the value of total capital invested in productive capital equipment (excluding the value of the farm or any permanent fixtures such as vineyards, sheds or

workers' houses) in the 1984/85 season is somewhat challenging, as this included a mixture of old equipment inherited with the farm, equipment purchased second-hand and new equipment purchased at the time. The only way to overcome this difficulty was to use the insurance replacement value of this equipment as at 31 March 1985, which amounted to R65 900.[6] Adjusted for inflation for the period to 2012/13, the capital investment would amount to R659 000.

The capital investment of R65 900 did not come without certain costs. The first of these was interest costs. In 1984/85 the average annual prime overdraft rate, used as a proxy for the average cost of capital, was 22 per cent and it reached a level of 25 per cent in August 1984 (Rossouw 2008). On a capital investment of R65 900, the annual interest amounted to R14 498. This cost and other expenditure related to the use of capital are explained in Table 2. Given the mixture of old and new equipment, no provision for depreciation has been made. The same approach has been followed in respect of the comparative figures for 2012/13. Owing to sustained inflation in South Africa, capital equipment used in farming appreciates, rather than depreciates.

Table 2
Capital cost, 1 April 1984 to 31 March 1985

Item	R
Interest	14 498
Diesel	2 000
Maintenance	2 500
Insurance	330
Total	19 328

Source: Interviews with Mr AB Rossouw

Up to 1988 the owner continued to use the labour/capital mix of the 1984/85 season. In that year eight of the twelve permanent labourers absconded after their annual year-end holiday. They did not return to work after the holiday period, which was followed within one month by the harvesting season.

The first step towards mechanisation was to replace the manually operated overhead sprinkler system with drip irrigation. The previous irrigation system used overhead aluminium pipes that had to be moved manually every morning and every evening to ensure irrigation of the vines. This was replaced with a drip-irrigation system with permanent irrigation installations requiring no labour and making more economical use of water and electricity. This was a fortunate decision as aluminium irrigation pipes are currently frequently stolen on farms where these are still used and are sold as scrap metal. Moreover, the use of drip irrigation makes optimal use of water and electricity, scarce resources in South Africa.

Moving from labour-intensive to capital-intensive production in South Africa is not limited to any particular sector in the economy. Edwards, Flowerday, Rankin, Roberts and Schöer (2014:39) state that "(w)e can conclude that South Africa's reintroduction into the global economy led to a shift away from labour-intensive production towards capital-intensive production". Of specific relevance for this paper is the further finding by Edwards et al (2014:44-45) that "… one critical distinction between agriculture and all the other sectors where sectoral … (wage) … determination exists (except forestry) is that agriculture is a tradable sector where it is possible to substitute capital for labour either directly or by changing the types of crops which are grown. In contrast the other sectors are all service sectors which are not tradable and where there is generally less opportunity for substitution of labour." Bhorat, Kanbur and Mayet (2013) find that

the introduction of minimum wages through sectoral determination resulted in large employment losses in the agricultural sector. Current government initiatives to introduce a national minimum wage (Finn 2015) will enhance the attractiveness of the employment of capital at the expense of labour. The long-term consequences of this are not yet known.

The next radical turning point in the decision to change production techniques in favour of capital-intensive production was the result of a labour strike during the harvesting season in 2000. On a small farm like *Swartrivier* it is important to harvest grapes at an optimal acidity/sugar balance to ensure maximum payout per tonne harvested.

The true reason for the strike is still somewhat unclear. In terms of labour legislation adopted at that time, employment conditions have to be stipulated in an employment contract (Republic of South Africa 1997). The farmer engaged the services of a labour consultant to assist with the compilation of employment contracts. Once the contracts had been compiled for each employee, a trade union representative advised the employees to (i) refrain from signing the contact as in his opinion it was not in accordance with the prevailing labour legislation and (ii) embark on a strike. The farm owner as the employer called a meeting with the trade union representative, the labour consultant and the employees in an effort to resolve the matter and avert a strike. Although it had been shown that the contract was compliant with the prevailing legislation, the trade union representative simply advised the workers to refrain from signing the contract and persist with strike action. As a result of the strike the harvest could not be brought in.

The owner's assessment of the strike action was that he had been held hostage by employees and the trade union, an unenviable position for any employer, irrespective of the type of business, but a particularly serious situation during harvesting season. The strike action appears to have been orchestrated to put the smallest farmer in the community under pressure, as larger farmers can afford suboptimal harvesting conditions. In a close-knit community such as the one where *Swartrivier* is located, neighbours care for one another. This was the case when the owner's house burned down and also the case during the strike. Neighbouring farm-owners came to the rescue of the owner of *Swartrivier* and helped to bring in his harvest. However, relying on one's neighbours in an emergency is a necessity; planning a business model based on support from neighbours is not sustainable.

The result of strike action was a decision to convert *Swartrivier* into a fully fledged capital-intensive farming operation with minimum employment. This was achieved through a number of broad steps. As a first step, the owner decided to use natural attrition to reduce employment. Labourers who resigned were simply not replaced, thereby making lay-offs unnecessary. This protected the owner against any possible form of labour action in terms of South Africa's labour legislation (Republic of South Africa 1995). Moreover, the owner refrains as far as possible from employing temporary labourers. Secondly, the owner invested in a mechanical grape harvester, making manual harvesting of grapes obsolete.[7] Thirdly, labour-intensive tilling practices were replaced by capital-intensive production methods.[8] The owner clearly took a decision never to be held hostage by labour again. This decision highlights an important aspect in the choice between labour-intensive and capital-intensive production methods: the question of the full cost of labour, namely inclusive of its unreliability. This is a particularly sensitive matter during harvesting season, when the full cost of unreliable labour or a strike can amount to loss of ownership of the farm.

In the 2012/13 production and harvesting season the owner employed five labourers for the whole period of twelve months and one labourer as a seasonal (temporary) worker for four months. Table 3 shows the saving in labour costs at a minimum wage rate of R69/day at the time for farm workers (Republic of South Africa 2012) owing to the reduction in employment. The minimum wage for farm workers was increased to R105/day in 2013 after strikes by farm workers on grape-producing farms (Republic of South Africa 2013a). The actual wage bill for 2012/13 is compared in Table 3. The daily wage of farm workers is set by means of a sectoral determination. A sectoral determination "…covers a group of sectors where it is difficult for workers to organize and includes: farm workers; domestic servants; civil engineering; wholesale and retail; forestry; private security; the taxi industry and small business. In these sectors the Minister of Labour sets minimum wages which are renewed periodically" (Edwards et al 2014:15; see Republic of South Africa 2012 for an actual determination).

Table 3
Direct saving on labour costs in 2012/13 compared to 1984/85 at 2012/13 wage rates

Class of labourer employed in 1984/85	Class of labourer employed in 2012/13	Rate per day 2012/13 wage rate	Number of days per annum in 1984/85	Employment cost (R) (1984/85 employment)	Employment cost (R) (2012/13 employment at 2012/13 wage rate)	Saving (R)
12 permanent	5 permanent	R69	250	207 000	--	--
7 female temporary	N/A	R69	125	60 375	--	--
3 temporary	1 temporary	R69	42	8 694	--	--
Total				276 069	122 568	153 501

As is explained elsewhere, actual daily wages paid in 2012/13 were above minimum wages. However, the number of employees declined from 1984/85 to 2012/13.

Source: Interviews with Mr AB Rossouw

Although this equates to an *annual* saving of R153 501 in direct labour costs, it is important to note that overtime payment in respect of these labourers would also have increased, as overtime is currently payable to farm workers (Department of Labour 2007). Moreover, it is an ongoing saving as farm wages will be adjusted in future at a rate equal to the rate of increase in the CPI plus 1,5 percentage points (Republic of South Africa 2013a).[9]

The average price per tonne of grapes produced on *Swartrivier* in 2012/13 was R2 722,45 (Interviews with Mr AB Rossouw). This implies that the wage of one labourer for one year (250 days per annum at R69/day = R17 250) was equal to 6,26 tonnes of grapes. The increase in the nominal average price per tonne of grapes therefore exceeded the nominal growth in the wage rate between 1984/85 and 2012/13, which shows that the price of grapes increased at a rate marginally above the rate of inflation, calculated on the basis of the consumer price index (Statistics SA [S.a.]).

From 1985 to 2012/13 the farm's total production increased from 465 tonnes to 648 tonnes. This is an increase of nearly 40 per cent in total production. The area under vineyards increased by some 24 per cent, while the balance of the increase can be ascribed to improved farming techniques.

The increase in the unit cost of labour over the period 1984/85 to 2012/13 exceeded the rate of increase in the average price level. Subsequently, substantial increases in farm wages were announced, with such wages nearly doubling to R120 by 2015, while the price level increased by some 20 per cent over the same period. In the analysis that follows it should be noted that the owner paid his labourers above the minimum wage

rate of R69/day in the 2012/13 season, with actual wages ranging between R73/day and R76/day depending on their skills, while the wage bill also includes a small bonus payment to labourers for good conduct, which is not prescribed by legislation.

The actual saving, if any, to the farm owner can only be calculated after taking account of more factors, such as additional usage and cost of capital. Total capital invested in productive capital equipment (excluding the value of the farm or any permanent fixtures such as vineyards, sheds or workers' houses) in the 2012/13 production and harvesting season amounted to R933 000. However, in the 2012/13 season the owner also used a professional pruning team to prune the vines, at a cost of R54 396. This provided employment for two weeks for 30 people employed by the pruning contractor. This practice will not continue as the owner has subsequently invested in a mechanical pruner.

If the same production techniques and mix of labour and capital as in 1985 had still been used in 2012/13, the figures highlighted in Table 4 would have applied to *Swartrivier*. Naturally the analysis in Table 4 assumes that:

- the same output level can be achieved by means of any mix of labour-intensive and capital-intensive production techniques; and
- the increase in production did not require any increase in the employment of labour and/or capital.

Whereas the average annual prime overdraft rate in 1984/85 was 22 per cent, it was 8,5 per cent in 2012/13. This clearly shows that the cost of employing labour, relative to the cost of employment of capital, has increased considerably over the period of comparison, without any allowance for the unreliability of labour manifested in the threat of strikes or actual strike action. It also raises questions about the appropriate cost of capital in South Africa, given the high unemployment in the country. The employment of labour, rather than the employment of capital, should be made attractive in South Africa, because the country suffers high levels of unemployment, in fact in excess of 25 per cent of the labour force (see Maswanganyi 2015).

Table 4
Cost comparison for *Swartrivier,* 1984/85 to 2012/13, Rand values

	1984/85 (actual)	1984/85 (adjusted for inflation)	1984/85 input adjusted for 2012/13 input costs	2012/13 (actual)
Labour	28 237	282 370	276 069*	105 114
Overtime	N/A	N/A	43 636**	17 454
Contractor	N/A	N/A	N/A	54 396
Capital usage	4 830	48 300	51 735***	110 985
Interest	14 498	144 980	56 015****	79 305
Rations	6 000	60 000	60 000	25 100
Total	52 140	535 650	487 455	392 354

* Employment figures for 1984/85 at 2012/13 wage rates.

** Calculated as the same percentage of the wage bill as for 2012/13.

*** The cost of diesel was calculated at a usage rate of 2 000l/annum and R11,72/litre; insurance was calculated at the same rate per insured value as in 2012/13 on the inflation-adjusted value of capital deployed in 1984/85 (i.e., adjusted for price increases to 2012/13), and maintenance for 1984/45 was adjusted for inflation.

**** Interest costs were calculated at an annual rate of 8,5 per cent per annum on the adjusted value of capital deployed in 1984/85, i.e., R659 000.

Sources: Badsberg Cellar, Interviews with Mr AB Rossouw, owner's bookkeeper, own calculations

The interest on a capital investment of R933 000 at the rate of interest prevailing in 2013 amounted to R79 305. In 2012/13 the owner used three tanks of diesel owing to increased mechanisation (6 000 litres), at a cost of R70 320 (R11,72/litre). The cost of maintenance in this period amounted to R36 000, while insurance costs were R4 665. These costs are compared in various ways with costs for the 1984/85 season in Table 4.

Table 4 shows that the actual cost of production in the 2012/13 season amounted to R392 354. The cost of production in 1984/85, adjusted for inflation, would have amounted to R535 650. Using the production methodology of 1984/85, based on actual costs for these inputs in the 2012/13 production season, the cost of production would have amounted to R487 455.

The actual net saving from capital-intensive production, compared to labour-intensive production, amounts to R95 101 (19,5 per cent) for the 2012/13 production season (the difference between actual production cost in 2012/13 and 1984/85 production input based on the 2012/13 cost structure) and amounts to an annual saving (albeit subject to inflation, wage increases, other cost adjustments and the like). This saving is realised in terms of the cost of labour, given the reduction in employment. This comparison shows that the owner's decision to adopt capital-intensive, rather than labour-intensive, production techniques makes economic sense. Moreover, this decision has also reduced the financial and economic risks of farming on *Swartrivier* in as much as the owner is less dependent on labour.

It is also noteworthy that a similar analysis will be possible for 2015. However, by 2015 the daily wage rate had increased from R69 per day to R120 per day; an increase of some 85 per cent. If other costs had increased at a rate commensurate with the rate of inflation over this period, while the daily wage rate increased by some 85 per cent, the annual saving on a like-for-like basis would have amounted to some R300 000 by 2015, based on employment figures for 1984/85.

5 Safety and political considerations

Safety on farms is a major consideration in South Africa. Swanepoel (2014) states that some 3 278 farmers and farm workers have been murdered since 1990. Statistics supplied by the SA Police Service (SA Police Service [S.a.]) show that the national murder rate in South Africa was 32,2 per 100 000 of the population, whereas it was 130 per 100 000 among farmers (Lamprecht 2014), that is some 4,2 times as high as that for the South African population in general.

This is a risk only the farm owner can assess in consultation with his family. However, it raises the question whether farm owners will be able to live on their farms in the foreseeable future, or whether it will be necessary for them to move to the closest town for reasons of safety.

Political considerations also increase the risks associated with farming in the long term. The South African government published proposals to expropriate half of every commercial farm in South Africa and hand it over to the farm workers. *The Final Policy Proposals for Strengthening the Relative Rights of People Working the Land* (Republic of South Africa 2013b) propose, among others, that:

i) the historic farm-owners will automatically retain half of their farms with the balance allocated to the workers on farms;

ii) the state will pay for the 50 per cent taken from owners for the workers; and

iii) the money paid by the state will not be paid to the current farm-owners, but will be paid into an investment and development trust fund to be used for the further development of farms.

The policy proposal states that farm workers will get shares in a farm on the basis of their contribution to the development of that farm, based on their number of years of service. The motivation for this policy is that landowners have benefited from advantages received in the past and from the payment of “exploitative wages”. It seems that the government has subsequently changed its policy on this matter to one based on farm size and number of farms owned per farm owner (see Hunter 2015). However, the current policy on farm ownership is not altogether clear, as President Jacob Zuma said in the 2015 State of the Nation Address (Zuma 2015) that “(w)e are also exploring the 50/50 policy framework, which proposes relative rights for people who live and work on farms”, which seems to be a reference to *The Final Policy Proposals for Strengthening the Relative Rights of People Working the Land* (Republic of South Africa 2013b).

Nevertheless, the application of any policy of part expropriation in favour of farm workers will give the owner of *Swartrivier* sufficient incentive to consider a model of farming without any labour whatsoever, by not filling any vacancies arising from natural attrition in respect of the remaining labourers. It is not yet clear whether the owner can achieve this objective, but it should be remembered that the objective of reducing total permanent employment also looked like an insurmountable challenge in 1988. It is also not clear how the government would deal with farms with no labourers in the event of the implementation of the proposed policy, but its possible implementation certainly provides an incentive to reduce labour employment even further.

Even more drastic action is proposed by the Economic Freedom Fighters (EFF), another South African political party, albeit not currently in power in South Africa. The EFF advocates the “(e)xpropriation of land without compensation for equitable redistribution: The EFF’s approach to land expropriation without compensation is that all land should be transferred to the ownership and custodianship of the state in a similar way that all mineral and petroleum resources were transferred to the ownership and custodianship of the state through the Minerals and Petroleum Resources Development Act (MPRDA) of 2002.[10] The state should, through its legislative capacity transfer all land to the state, which will administer and use land for sustainable-development purposes. This transfer should happen without compensation, and should apply to all South Africans, black and white” (Economic Freedom Fighters [S.a.]).

The possible implementation of the EFF policy poses a challenge that is the direct opposite of the challenge posed by the government policy. The possible implementation of the government’s proposed policy makes further capital investment to replace all remaining labour on *Swartrivier* particularly attractive, at least in an attempt to avert policy implementation, as there will be no labourers to take 50 per cent ownership of the farm. However, it should be noted that the government has not yet explained its policy position on farms where no workers are employed.

The possible implementation of the EFF’s policy dictates the opposite strategy: The owner should stop **all** capital investment (including investment in replanting the vineyards) and should invest in other assets. This would ensure the lowest loss in capital value if the farm were to be expropriated. Moreover, the maximum amount should be borrowed from financial institutions with the farm and crop as sole security and the proceeds invested in other assets. The expropriation of the farm would then

leave financial institutions having advanced loans with worthless surety and incurring a substantial loss; in the same way the production quota purchased by the farm owner would have lost its value.

This particular challenge turns on a number of important questions: Will it be business as usual in future, will the ANC government implement its policy of allocating half of farms to workers, or will the EFF win an election and implement its policy of expropriation?

6 Conclusions and questions for further consideration

The analysis in this paper is based on data on grape farms in the Western Cape Province of South Africa, not on wine farms. These farms are in the main productive units supporting their owners and their families and the labourers working on these farms and their families. The farms are run on normal business principles.

The history of *Swartrivier* since 1984 has provided the data for a single case study on labour, capital and the substitution of labour by capital. The analysis clearly shows that the employment of capital to replace labour increased the profitability of the farm. On a like-for-like basis the profitability of the farm increased by R95 101 (19,5 per cent) per annum. However, according to the owner, if mechanisation simply results in no additional costs compared to labour-intensive production, changing from labour-intensive to capital-intensive production is advisable owing to risk reduction.

This has serious implications for labour employment. The capital/labour ratio on the farm has increased considerably, while employment opportunities have been reduced. This is a serious concern in a country like South Africa, given the country's unemployment rate. It also raises questions about the comparative relative cost of capital and labour. Capital is either too cheap (interest rates should be increased substantially) or labour is too expensive. The latter implies that wages should be reduced and the "full" cost of employment (including strikes and labour unreliability) be reconsidered.

The paper raises a number of questions. In the main these turn on the owner's decision to convert the farm into a capital-intensive production unit, rather than a labour-intensive production unit. This decision raises moral and social issues, perhaps beyond the scope of economics. However, one reality remains: The owner of *Swartrivier* is the only remaining descendent of the first Botha who owned the farm still to own part of the original farm. Should his decisions be driven by what is good for his own business or by moral questions about the collective good, namely increased employment in South Africa?

A related question is the full cost of labour, compared to the full cost of capital. In this case study the full cost of labour comprised not only wages and related costs of employment, but also the cost of strike action. In the final analysis it is not clear whether the owner had any other option following the strike action.

When there is no work for capital equipment which has been paid for in full, it stands idle and costs very little in terms of opportunity costs (mainly the loss of interest on capital invested). If there is no work for the workers, they still have to be paid their wages and costs like housing and water usage are still incurred.

It is also necessary to consider whether the current level of interest rates is not too low, thereby distorting the relative cost of capital compared to labour, given the fact that South Africa has a serious unemployment problem.

The impact of regulatory changes on businesses is also an important question. In this instance a change in the regulatory environment rendered an investment worthless. The capital used for investment in a production quota could have been used for other purposes on the farm.

Political uncertainly poses particular problems for South African farmers when they have to decide how to proceed with their farming operations. In the case of *Swartrivier*, the questions to be considered are whether it will be business as usual in future; will the ANC government implement its policy of expropriating half of farms for transfer to workers; or will the EFF win an election and implement its policy of expropriation with transfer of ownership to government? The assumptions used in answering these questions will determine the owner's future investment strategy. However, land redistribution will not address South Africa's major economic challenges such as unemployment. This matter is at best a red herring to draw attention away from the country's real challenges.

List of references

Bezuidenhout, FA. 2014. *South African producer/co-operative wineries*. Study submitted in in partial fulfilment of the requirements for the diploma of Cape Wine Master to the Cape Wine Academy. Available at: http://www.capewineacademy.co.za/dissertations/Francois%20Bezuidenhout%20%20%20producer%20cellars%20%20dissertation%20final%202014%20%28april%29.pdf (accessed on 10 November 2015).

Biermann, B. 1971. *Rooiwyn in Suid-Afrika.* KWV: Paarl.

Bhorat, H, Kanbur, R & Mayet, N. 2013. The impact of sectoral minimum wage laws on employment, wages, and hours of work in South Africa. *IZA Journal of Labor and Development* 2(1):1-27.

Cape Winelands District Municipality (www.capewinelands.gov.za).

Cronjé, F. 2014. Suid-Afrika se probleem is nie ongelykheid nie, *Rapport,* 27 July.

Department of Labour. 2007. *Basic Guide to Overtime (Farm Workers)*. Available at: http://www.labour.gov.za/DOL/legislation/acts/basic-guides/basic-guide-to-overtime-farm-workers (accessed on 10 November 2015).

Die Verhaal van Wyn. [S.a.]. Johannesburg: SABC.

Economic Freedom Fighters. [S.a.]. *Expropriation of land without compensation for equitable redistribution*. Available at: http://effighters.org.za/policy/on-land/ (accessed on 29 July 2014).

Edwards, L, Flowerday, W, Rankin, N, Roberts, G & Schöer, V. 2014. *South Africa Country report*. Employment Effects Study Report, December.

Finn, A. 2015. A national minimum wage in the context of the South African labour market. National Minimum Wage Initiative: *Working Paper No 1*, August. Johannesburg: University of the Witwatersrand.

Fransen, H & Cook, MA. 1965. *The old houses of the Cape.* Cape Town and Amsterdam: AA Balkema.

Hunter, Q. 2015. ANC wants land cap of 12 000 hectares or two farms, *Mail & Guardian*, 28 January.

Hughes, D, Hands, P & Kench, J. 1992. *South African Wine.* Cape Town: Struik.

Interviews with Mr AB Rossouw, Owner of the farm *Swartrivier*. Various dates.

Kok, JA. 1987. *Die Botha's van die Bad.* Glenstantia: Eksteen & Le Roux.

Lamprecht, H. 2014. "Minister: Ek sal plaasmoorde pak", *Beeld,* 22 July.

Maswanganyi, N. 2015. Stats SA report shows damage of 2008 crisis. *Business Day,* 4 February.

OECD. 2006. *OECD review of agricultural practices: South Africa*. Paris: OECD.

Records of Badsberg Cellar.

Records kept by the owner's bookkeeper, Messrs Basson & Kie.

Republic of South Africa. 1995. Labour Relations Act 66 of 1995, as amended.

Republic of South Africa. 1997. Basic Conditions of Employment Act 75 of 1997, as amended.

Republic of South Africa. 2002. Mineral and Petroleum Resources Development Act 28 of 2002, as amended.

Republic of South Africa. 2012. Basic Conditions of Employment Act 75 of 1997: Sectoral determination 13, Farm Worker Sector, South Africa. *Government Gazette* 34946, 18 January.

Republic of South Africa. 2013a. Basic Conditions of Employment Act 75 of 1997: Sectoral determination 13, Farm Worker Sector, South Africa. *Government Gazette* 36115, 5 February.

Republic of South Africa. 2013b. *Final policy proposals for strengthening the relative rights of people working the land,* 30 July. Pretoria: Department of Rural Development and Land Reform.

Rossouw, J. 2008. Inflation in South Africa, 1921 to 2006: History, measurement and credibility. Unpublished PhD dissertation, University of KwaZulu-Natal.

Standing, G, Sender, J & Weeks, J. 2000. *Restructuring the labour market: The South African challenge*. 2nd impression. Geneva: International Labour Office.

SA Police Service. [S.a.]. *Crime situation in South Africa.* Available at: http://www.saps.gov.za/resource_centre/publications/statistics/crimestats/2014/crime_stats.php (accessed on 10 November 2015).

Swanepoel, E. 2014. Minder, maar wreedheid pla. *Beeld,* 23 July.

Statistics SA. [S.a.]. Available at: http://www.statssa.gov.za (accessed on various dates).

Van Deventer-Terblanche, H. 2011. *Cape winelands cuisine*. Cape Town: NB Publishers.

VinPro. [S.a]. Available at: http://vinpro.co.za/about-us (accessed on 3 November 2015).

Zuma, J. 2015. *State of the nation address*, South African Parliament, 12 February.

Endnotes

[1] Excerpts from this paper have been used as a case study by Postgraduate Diploma in Business Administration (PDBA) students studying microeconomics at GIBS, University of Pretoria.

[2] The current owner is the brother of the author of this paper and is thanked for his contribution to this paper. Information was obtained in a series of interviews conducted by the author with the owner (Interviews with Mr AB Rossouw).

[3] This section draws on records kept by the owner (Interviews with Mr AB Rossouw) of Badsberg Cellar, where the grapes grown on the farm are converted into wine, and by the owner's bookkeeper, Messrs Basson & Co.

[4] The KWV as it is currently known was known at the time as the "Ko-operative Wijnbouwers Vereniging van Zuid Afrika Beperkt" (Co-operative Winegrowers Society) and served as the production control board of the industry.

[5] The house destroyed by fire was not a gabled thatched Cape-Dutch homestead, but a house built in 1952 by the current owner's grandfather to accommodate a share-cropping farmer.

[6] The calculation of the total value of capital invested in productive capital equipment in 2012/13 poses a similar problem, and the same approach has been followed.

[7] Because of cost considerations, the owner purchased a one-third share in a mechanical harvester. The daily harvesting capacity of the harvester far exceeds *Swartrivier's* harvesting needs.

[8] This change in production techniques was not confined to *Swartrivier*. According to Cronjé (2014), total employment on South African farms declined from 750 000 employees in 1990 to 500 000 in 2014.

[9] The announcement in the *Government Gazette* says *Previous year's minimum wage + CPI + 1,5%* and CPI is defined for this purpose as " … the available CPI for the lowest quintile as released by Statistics South Africa six weeks prior to the increment date". However, the use of *1,5%* is wrong, as it should read *1,5 percentage points*, i.e. a margin to be added to the rate of change in the CPI.

[10] Republic of South Africa 2002.