

Financing of productivity enhancement in industrial development: Lessons from the Workplace Challenge initiative

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Abstract

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Firm-level productivity constitutes a key pillar of sustainable industrialization across all sectors of an economy. Thus, the allocation of financial resources towards embedding practices and processes at firm level for improved productivity is important. In this paper, a review of international literature on specific funding mechanisms focused on productivity enhancement is provided. This is then followed by a similar review of local financial incentives geared towards productivity enhancement programme, as provided by national government. A critical review of the scope, nature and possibility of measurement of outcomes of local programmes is provided. Finally, lessons from the Workplace Challenge (WPC), a productivity support programme funded by **the dti** are outlined. This preliminary review includes the size and rate of growth of funding for the past 20 years of its existence, progress in terms of the number of companies and employees benefitting from the programme, as well as findings on key productivity indicators such as firm level cost, speed of production, wastage improvement, workplace collaboration and so forth.

¹ This draft paper does not represent the views of **the dti**. Comments are welcome.

This paper seeks to elucidate lessons learnt from the development of financial incentives that are not sector-specific, yet are specialized in that they focus on improving firm-based business, management and workplace practices. As a complement to sector-based incentives, such specialized incentive programmes may constitute more long-term holistic interventions towards embedding a culture of productivity; and one that goes beyond the mere injection of money and/or technology only to improve productivity and competitiveness of firms and sectors.

Introduction

“... S[s]omething radical needs to be done to create jobs and grow the economy.”

Surprisingly, this is not a statement from a politician at an election rally in a South African township, but part of a statement from the chairperson of the Manufacturing Circle, a corporate association of manufacturers, a thought leader for the manufacturing sector (2017:1). Thus, if even business believes that some “radical” approach is necessary to reverse the deindustrialization trajectory and shift manufacturing on to a higher growth path, for both business and social good, then more innovative thinking about the financing of industrial development initiatives is imperative.

Firm-level productivity constitutes a key pillar of sustainable industrialization across all sectors of an economy. According to the OECD (2015:3) “..productivity is the **ultimate** engine of [global] growth..” . It follows that an understanding of sufficient and the necessary allocation of financial resources towards embedding productivity-enhancing practices and processes at firm level is fundamental to industrialization; and in the South African case to

reverse the trend towards de-industrialisation and poor growth and employment patterns. For the purposes of “...future growth and prosperity...”, productivity will be the main driver in the economies of the OECD (OECD: 2015:3). Thus, given the persistence of low-growth in manufacturing, the extent to which financial incentives may better support increased productivity for re-industrialisation, as a tool for **faster** and **inclusive** growth is the subject matter of this paper.

This paper is arranged into three sections: the first section reviews international literature on incentives for industrialisation; then follows a similar review on selected South African financial incentives addressing productivity and competitiveness by **the dti**. A brief review of a rapid appraisal of the Manufacturing Competitiveness Enhancement Programme (MCEP) is included. Then follows an overview of the nature, performance, funding and possible lessons from the Workplace Challenge (WPC), a **dti**-funded productivity programme; and finally a discussion on the implications of the current approach to financial incentives for industrialization.

Methodology

This paper is based on the analysis of secondary data, including administrative statistics of the dti, policy documents, evaluation & impact study reports, as well as local and global reviews of relevant literature. It was possible to do limited trend analysis given the incentive monitoring reports since 2013/14. However, chief among the limitations for this analysis is need for more comprehensive administrative statistics. Thus, highly aggregate administrative information on number of grants and value, jobs supported and so forth are included. However, except in a small number of company case studies, the measurement of macro-and micro performance indicators flowing from the incentives is absent. Where

company case studies are outlined in the incentive monitoring reports, they tend to be disparate, but have the real potential of adding much needed depth to the aggregate administrative results.

The study authors of the MCEP rapid appraisal noted that the findings are not generalizable, given an unrepresentative sample. However, some of the aggregate results are included here. The results of the M&E reports on the Workplace Challenge are also indicative, but the case study results of individual companies are useful in that they are reliable over time for the effect of the intervention on specific companies that have been tracked.

The next section provides a brief international overview of incentives and productivity.

International literature review on incentives and productivity

Purpose of incentives in industrialisation

According to UNCTAD (2004), financial or non-financial incentives, are part of the suite of interventions to enhance national economic development strategies. Thus, tax exemptions, grants, loans, export exemptions and so forth are most often used to promote investment from domestic companies and foreign direct investment (FDI). Effective design and implementation may contribute to improvements in productivity, up-scaled industrialization, improved export capacity, competitiveness and growth. Further, incentives may “...compensate for deficiencies” in the national business environment and to attract “flagship” investors (UNCTAD, 2004)

A key limitation acknowledged in the international literature is that there is a lack of comprehensive studies that measure the intersection of fiscal incentives and the productivity of firms, especially among African economies (Rapuluchukwu *et al*, 2016). The

OECD (2015:68) echoes this sentiment in that comparative cross-country studies on productivity dynamics and the related policy context in the OECD are limited by the “..lack of suitable data”.

Key lessons from the international experience

In the absence of investment (domestic and FDI), the chances of improving productivity capacity are much reduced. UNCTAD (2004) research suggest that more integrated (or holistic) approaches to gain more and better quality FDI need to be embedded in national development strategies, geared towards productivity improvements, skills development and technology upgrading and so forth.

German incentive system aims to reduce the investment cost for building new business premises, R&D activities and the diffusion of new technologies (GTAI:2014). Malaysia offers a suite of incentives, such as incentives for manufacturing sector high technology companies, strategic projects, and so forth. Over time, the nature of incentives shifted qualitatively from manufacturing to R&D as the development path goes up the value chain.

On the African continent most countries are still locked in the export of low value added primary products (UNECA, 2013) while the productivity of other sectors (apart from the primary sector- i.e. agriculture) has lagged behind. Recently, there is a growing interest in improving the productivity of firms in countries (Rapuluchukwu, Belmondo, and Ibukun, 2016). Results from their econometric study on Cameroonian firms on the effect of different government incentive types on productivity found that there is an association, even if not of a causal nature. Thus, improvements in productivity tended to be associated in the case of profit tax exemption and export incentives (2016:23).

Productivity is driver of global economic growth. Thus, the OECD (2015:3) refers to productivity as the “...diffusion machine...”, that is the diffusion of knowledge between the “global leaders and the rest”, to address the increasing gap between the two. Knowledge diffusion allows economies to “...absorb, adapt and reap” the advantages flowing from “...new technologies”. Thus, if African economies and South Africa specifically are not part of this “diffusion machine” especially in the age of the 4th Industrial Revolution, shifting comparative advantage up the value chain will remain an illusion.

Review of local incentives in manufacturing

This section provides an overview and analysis of selected government financial incentives in the post-apartheid period to promote investment in manufacturing. A critical review of the scope, nature and the performance outcomes of local programmes is provided. The extent to which productivity enhancement is addressed among targeted firms and sub-sectors in manufacturing is explored. The analysis is confined to incentives administered directly by **the dti** as captured in reports on administrative statistics. The paper excludes incentives provided by Development Finance Institutions (DFIs), including the Industrial Development Corporation (IDC) and others.

Industrial financing aims to transform and diversify the economies from low value-added activities (that is exporting primary products) to high value-added (exporting value added goods). **The dti** incentives (2017:6) are offered in five (5) clusters as outlined here:

- Broadening Participation Cluster (BIS, THRIP & SPII);
- Manufacturing Investment Cluster (12i, MCEP etc);
- Services Investment Cluster (BPS & Film and TV);
- Competitiveness Investment Cluster (MCEP, EMIA, SSAS & CFPF); and
- Infrastructure Investment Cluster (SEZ, CIP, Industrial Parks and CDP)

This analysis focuses on two (2) clusters, the Manufacturing Investment Cluster and the Competitiveness Investment Cluster, given their relative weight in terms of industrialisation, the focus on manufacturing and the centrality of productivity-related factors built-in to their objectives. Further, only a selected number of incentives within these two (2) clusters are included for analysis. The Black Industrialist Scheme (BIS) is excluded, given its recent introduction.

The dti offers three (3) types of incentives, the bulk of which constitute cost-sharing grants, followed by the 12i tax allowance incentive scheme and a loan facility for MCEP which is currently administered by the IDC, and also the smallest proportion of fiscal incentives (2017:8). In this section, the macro-indicators of 12i and MCEP are reviewed in light of their stated objectives related to productivity enhancement.

Trends in the Manufacturing Investment cluster: 12i Tax allowance and MIP

12i Tax allowance

The 12i programme was selected for analysis, as its objectives are directly related to productivity enhancement. The grant threshold structure favours greenfield investment as compared to brown field investment. During its implementation for 2010-2017 it sought to:

- Improve productivity through investment in manufacturing assets (new [green field] projects and upgrading/expansion of existing [brown field] projects);
- Broaden skills and labour productivity through a training allowance (the dti, 2017:19).

Table 1 illustrates trends in projected investment leveraged through the tax deduction scheme managed by the South African Revenue Service (SARS). Thus, projected investment leveraged was very high often twice the tax allowance. However, the projected number of direct jobs relative to the tax incentive was very low. In order to gain a fuller understanding of the real impact, the extent to which projected investment was realized would be important.

Thus, tracking of companies on these macro-indicators would add depth to the analysis

Table 1: Performance outcomes for 12i (2013/14-2016/17) (Rands)

Indicator	2013/14	2015/16	2016/17
Number of projects approved	13	38	25
Investment tax allowance approved	4.8bn	6bn	3.9bn
Training allowance approved	0.070bn	0.146bn	0.083bn
Projected investment by companies	9.2bn	13.5bn	14.3bn
Projected direct jobs	2 681	6 551	1 148
Projected indirect jobs	17 168	Not available	Not available

Source: the dti reports

Table 2 suggests that It shows that The largest proportion of investment was in the chemical sector. The projected investment in this sector was overwhelming larger relative to the combined figure for the other sectors. In the first period (2013/14 - 2015/16), joint projected investment by non-chemical sectors constituted about R21.4billion just slightly larger than the chemical sector only. Of concern is that more labour –intensive sector such

as agro-processing and metals have significantly lower levels of projected investment, a pattern well-established in the manufacturing sector. This has an impact on the extent to which the 12i stimulate investment in more job-creating sectors.

Table 2: Trends in projected investment for the 12i incentive (4 years) (Rands)

Sector	2013/14-2015/16	2016/17
Agro-processing	4.1bn	2.7bn
Metals	4.8bn	2.69bn
Chemicals	18.8bn	Not available
Electro-technical	3.9bn	-
Non-metals	2.4bn	-
Wood & Paper	3.1bn	0.251bn
Transport	3.1bn	0.251bn

Source: the dti reports

Table 3 suggest that the largest tax benefit accrued to the chemical sector, which is highly capital intensive. More labour intensive sectors, including agro-processing and metals, enjoyed relatively large tax benefits, but nothing compared to the chemical sector.

Table 3: Comparison of tax investment allowance and projected jobs for 12i(2015/16 – 2016/17)

Sector	2015/16		2016/17	
	Investment allowance	Projected jobs	Investment allowance	Projected jobs
Agro-processing	1.7bn	1 075	1.2bn	253
Metals	0.309bn	73	0.683bn	304
Chemicals	1bn	109	1.5bn	398
Non-metals	0.093bn	121	0.034bn	10
Transport	1bn	699	0.080bn	153

Source: the dti reports

It is difficult to provide a view on the impact on productivity, given that individual case studies do not provide outcomes on the projected macro-indicators such as projected jobs and investment, and no micro-indicators nor outcomes at plant level, including cost, speed and so forth. Table shows that the number of projected jobs are very low. It is suggested in the reports that while the level of direct jobs remain low, linkages to more labour-intensive sectors, such as agriculture for instance, may result in more indirect jobs.

The Manufacturing Investment Programme (MIP)

The MIP grant programme was established in 2008; it closed in 2013 for new applicants. However, it continues to pay claims until September 2018 (the dti, 2017: 28). It is aimed at stimulating investment and growth in small enterprises in manufacturing. Even though the scheme objectives do not specifically relate to productivity, its impact on job retention is notable. Thus, over the 4-year period, 2012/13 -2015/16 it disbursed R2.4 billion, supporting 150 662 jobs. In 2016/17, it disbursed R400 million and supported 26 030 jobs (**the dti**: 2017:28). Given the relatively smaller funding regime, a significant number of jobs were protected.

Trends in the Competitiveness Investment Cluster: MCEP

In 2012, **the dti** introduced the MCEP partly in response to the adverse effects of the 2009 global financial crisis and the subsequent local economic recession. MCEP promotes enterprise competitiveness and job retention of South African-manufactured goods and services (**the dti**: 2017). The incentive consists of the Production Incentive Programme (PIP) a grant managed by **the dti**, and the Industrial Financing Loan Facility, managed by the IDC.

The following types of grants were offered for:

- Capital investment;
- Enterprise level competitiveness improvement;
- Green technology and resource efficiency improvement;
- Cluster interventions; and
- Feasibility studies

This suite of options sought to address challenges of outdated capital equipment, productivity concerns at workplace level, addressing management practices, efforts towards sustainable manufacturing, value chain interventions and market access among others. This represented a more holistic approach in that it signaled to manufacturers identified weaknesses in operations, product and process management issues that have plagued South African firms. In practice though, most grants were those for capital investment. Due to the lack of administrative data it is not possible to do a trend analysis of the types of grants over the entire MCEP period.

MCEP was implemented in 2012, and by October 2015 the entire budget of R5.75 billion was fully committed. No new applications were granted. Claims continue to be paid out (**the dti**, 2017:46).

Table 4: Performance indicators for MCEP at application stage (2012/13-2016/17) (Rands)

Indicator	2012/13	2013/14	2014/15	2015/16	2016/17
Number of projects approved (enterprises)	197	365	334	258	na
Value of approved grants	0.983bn	2.8bn	1.35bn	1.9bn	0.871bn
Value of claims paid	na	0.996bn	0.494bn	1.4bn	0.989bn
Value of projected investment by companies	na	11.7bn	R5.5bn	9.4bn	3.9bn
Number of baseline jobs (at approval)	na	106 539	37 000	58 520	na

Source: the dti reports (2013/14-2016/17)

na: not available

A summary of MCEP outcomes by 2017 is as follows:

- 2453 applications received since 2012;
- 1153 projects with grant value of R7.1bn were approved;
- R4.4bn had been paid out by 2017;
- More than half of approvals were in metals and agro-processing;
- R30bn in projected investment was leveraged, which constitutes about 8% of total manufacturing investment over the MCEP period
- 230 000 baseline jobs were sustained; this is approximately 12% of total manufacturing employment (**the dti, 2017**)

In its intention, MCEP is an important illustration of the intersection between incentive financing, productivity enhancement and competitiveness.

Impact Assessment Findings on MCEP

A rapid appraisal of the MCEP grant incentive was conducted to assess the extent to which the programme objectives were met, and lessons and recommendations for programme improvements.

However, given a number of challenges a lack of comprehensive data on the MCEP population of enterprises as well as a low response rates, the findings are not generalizable (the dti: 2016). However, there is value in the results, given the comparative nature of the research methodology. On the one hand, the progress of MCEP participants on a number of macro-and micro productivity indicators was compared to a reference group of companies (the dti, 2016). Also, measurement of relative capital versus labour intensity provided very useful comparative differences on productivity indicators at a micro- and macro level. Further, in the absence of alternative data, and given the centrality of the MCEP objectives of improvements in competitiveness (including people, products and processes) and job creation, only the most aggregate results may be considered as indicative, if not conclusive. As a result, this report will not include findings on productivity related indicators.

There was an overwhelming demand for capital investment grants, while under 20% of grants was geared to enterprise level improvement. This suggest that most companies prefer capital upgrading as the route to competitiveness. Capital investment for upgrading equipment or expansion of infrastructure (75%)

- Green technology upgrades for cleaner production and improving resource efficiency (6%)

- Enterprise-level competitiveness improvement activities for new or increased market access, product and process improvement, including related skills development (17%)
- Feasibility studies to generate research around creating a market for locally manufactured goods (1 company)
- Cluster competitiveness improvement(none)

The dominance of capital investment related grants suggests that companies generally regard upgrading or expansion of capital equipment as the preferred trajectory towards increased competitiveness. In effect, when including those with green technology grants, 81% of the “sample” preferred a capital investment-related grant. The report recognizes the challenge of outmoded factories and equipment. Just under one-fifth of grant claimants sought to focus on some form of product, process or people improvement. These non-capital intensive investment options may be more difficult to implement and may require a longer-term planning and implementation horizon. It does suggest that a more thoroughgoing discussion, on a more varied path to productivity and competitiveness to sustain business through variable economic cycles, is required.

Finally, as indicated previously, given the small sample, high levels of disaggregated results on macro-indicators such as profitability, MVA and export markets, and micro-indicators such as customer return rates, inventory holding result may not prove useful. These will therefore not be considered in this paper.

However, the report does suggest that in order to measure the real return on investment through industrial financing, a proper monitoring system of administrative statistics is vital as part of the implementation process.

The next section provides an overview and analysis of the WPC, a productivity support programme.

Lessons from Workplace Challenge (WPC)

The Workplace Challenge (WPC), is a productivity support programme funded by **the dti**. This preliminary review provides an analysis of the history, purpose and objectives, size and scope, funding trends, as well as some findings on key micro-productivity indicators including quality, cost, safety, delivery and morale(QCSDM).

Workplace Challenge as Industrial Policy intervention

Black *et al* (2016:5) in illustrating a chronology of industrial and competition policy cite WPC during 1995 -1998, as a one of the supply side incentives to “...improve productivity by facilitating joint training of workers and managers”. Thus, while the programme is still being conducted, its role of an industrial policy incentive has never been fully realized, nor occupied a similar status to other financial incentives previously investigated. The incentive is different in that there is no direct flow to the participating companies. The programme provides highly subsidized enterprise capability enhancement support, mediated by an implementing agency nor has it explored.

Background to Workplace Challenge (WPC)

In the transition from apartheid to democracy the WPC programme arose from engagement between labour, government and business at Nedlac, and was launched in 1998. The purported purpose at the time was to enable South African companies meet the challenge of re-entry into global markets, become more productive and competitive. In addition to the

efficiency aims on improved production processes, given the fraught labour relations at the time, in both its intent and practice the WPC programme implements across the divide of workers and management. In 2018, and now in its 20th year, WPC is funded by **the dti** and implemented by Productivity SA, formerly the National Productivity Institute (NPI). Productivity SA is a Section 3A entity of the Department of Labour, and the national knowledge leader on productivity and related matters.

WPC Implementation Model

WPC is implemented through a number of internationally benchmarked toolkits against best practices in Japan, Germany and other high-performance economies with a focus on manufacturing firms, in IPAP priority sectors.

The implementation toolkits are customized across the following areas:

- Constructive workplace relations,
- Improving workplace practices – Best Operating Practices,
- Facilitating the establishment of Management and Labour Forums (PLC),
and
- Establishment of Model Companies to disseminate processes and lessons.

The programme is implemented for 24 months with dedicated industrial engineers and change facilitators assigned to individual companies; companies form geographical cluster for knowledge and best practice diffusion; and since 2013 emerging industrial clusters of companies including aquaculture, forestry and other agro-processing targets have been an additional focus. There are three (3) phases, including the nurturing and orientation phase;

then the implementation phase and finally, the aftercare phase. The second phase of implementation of the chosen toolkits is usually the most intensive part of the programme.

The main micro performance indicators of improvements in productivity (QCSDM) are:

- Quality- products and services that meet customer requirements and reduction in rejects or non-conformance of products;
- Cost – reduction in the cost of waste or inputs relative to the value of outputs
- Safety – reduction in work time lost, as a result of accidents and a hazardous-free working environment
- Delivery time – reduction of variability in time or speed to produce products or services and the reduction of waste;
- Morale – the extent of job satisfaction of employees, including employee engagements, absenteeism (Productivity SA, 2018:2)

It is expected that companies which implement extensive workplace practices would achieve operational efficiency and productivity improvement. Performance outcomes are in the form of improvement in staff morale and absenteeism, reduction in cost and waste, increase in quality and delivery time are expected results following a company's participation in the programme. Workplace practices include: employee and employer collaboration, training, continuous process improvements, sharing of lessons and best operating practices. This is achieved by promoting and implementing, best operating practices, co-operation and collaboration between employers and workers.

Since the phasing in of the web-based M&E system in 2015, the micro-indicators (QCSDM) have been complemented by macro-indicators such as annual turnover, profitability, employment and export capability among others.

Impact of WPC on company performance indicators

The first impact study was conducted in 2009, and there are ongoing preparations for another study in the 20th year of the WPC. In the intervening period performance monitoring took place, through the collection of impact statements by company representatives. However, given the limitations of this method, in the post-2015 period a formal web-based M&E system was designed, and is gradually being phased in across all participating enterprises.

An impact assessment study (Productivity SA, 2011: 3) was conducted in 2009 for the period from 2004/05-2008/09 measuring the average productivity improvement of participating companies, in terms of speed, quality, morale and cost reduction. While the study suffered from data quality limitations, the participation rate of 20.7% from a population of 164 small, medium and large companies was good. The study analysed impact statements from companies who had “graduated” from, and completed the implementation phase of the programme. Further, a survey of a worker and a manager from each company was conducted, on the effectiveness and efficiency of the programme, as well as in-depth telephonic interviews of senior managers and shop stewards. The key findings were as follows:

- 100% of survey participants reported that participation has been useful. Of these, 97% said that they would recommend other companies to join.
- They programme facilitated improvement in the workplace relations between workers and management in terms of team involvement in planning and setting of goals to be achieved, while 93% of management

agrees with this statement. Furthermore, workplace relations are thought to have further reduced absenteeism.

- All respondents reported that their companies have started adopting best operating practices (BoPs). Management respondents indicated that this assisted in becoming more competitive;
- 68% reported reductions in cost as a result of the programme;
- 88% reported quality improvements in their production process;
- 45% of management respondents reported that the programme contributed to an increase of gross profit in the range of 0-10%; 6% of respondents stated that gross profits increased by over 50%.
- 85% of respondents reported improvement on the production delivery time.
- All respondents reported some form of improvement in production output.
- 55% of the respondents attributed increased market access for exports to the programme

This evaluation was based on the perceptions of worker and management respondents, and output measurements were not included. However, company case studies have been conducted on annual basis. These show that there are indeed clear improvements in terms of the key productivity indicators of speed, cost reductions, worker morale and so forth. Given the dearth of productivity related capacity in co-operatives and small companies, the

WPC also implemented about 576 Kaizen projects in these entities. Kaizen projects are 3-6 months' introductory interventions on continuous improvement practices, based on the Japanese Productivity Centre (JPC). At the time this intervention was introduced to address the high attrition rate among co-operatives. In support of the dti mandate, since 2015, WPC supported over 30 emerging Black Industrialists and 25 enterprises in Special Economic Zones (SEZs), or IDZs transitioning to SEZs.

Financing trends of the WPC by government

As shown in Table 6, for 2003/04 to 2017/18, it is apparent that the funding of WPC has declined in both absolute and relative terms. Starting off a very low base, government funding has lagged behind inflation over the years. It is a cost-sharing scheme, but the company fee or contributions have lagged behind. The financial recession and consequent cutbacks in government spending have also played a role in real funding declines. The total funding value into the WPC from the dti (including other donations) for this period is estimated at R151 million against a total company turnover of R1.9 billion generated by participating enterprises (Productivity SA, 2018). Most companies employ between 50- 100 employees, although larger companies constituted a much larger share in the earlier years.

Table 6: Overview of trends in WPC funding- government grants and company contributions (2003/4 – 2017/18) (Rands)

Year	Thedti grant	% change	Other income	Company fee	Total Income
2003/4	11 407 704		-	-	11 407 704
2004/5	7 000 000	-38.6%	-	-	7 000 000
2005/6	7 740 000	10.6%	320 000	-	7 740 000
2006/7	7 865 000	1.6%	-	-	7 865 000
2007/8	8 258 000	5%	-	-	8 258 000
2008/9	8 660 000	4.9%	-	-	8 660 000
2009/10	11 530 000	33.1%	-	494 000	12 024 000
2010/11	11 500 000	-26%	-	450 000	11 950 000
2011/12	9 500 000	-17.4%	-	710 000	10 210 000
2012/13	8 200 000	-13.7%	R1 827 999.00	311 000	8 511 000
2013/14	13 871 000	69.6%	-	988 000	14 859 000
2014/15	9 390 000	-32%	-	362 000	9 752 000
2015/16	8 094 000	-13%	-	2 635 000	10 729 000

2016/17	8 823 000	8%	-	2 297 000	11 120 000
2017/18	8 949 000	1.4%	-	1 981 000	10 930 000
TOTAL	R140 787 704	-6.8%	R2 147 999	R10 228 000	R151 015 704

Source: Productivity SA, various years

Table 7: Number of jobs retained (2014/15 – 2016/17)

Year	The dti grant funding	Number of jobs retained
2014/15	9 390 000	55 900
2015/16	8 094 000	48 275
2016/17	8 823 000	49 222
Total:	26 307 000	153 397

Source: Productivity SA, 2018 (adapted)

The table shows that for the 3-year period, dti grant funding of only R26 million contributed to the retention of over 150 000 jobs. The disparity in terms funding levels, job retention and illustration of productivity indicators is very evident.

Discussion of implications of financing of post-apartheid fiscal incentives

In the post-apartheid period, fiscal and non-fiscal incentives sought to support the effective implementation of an industrial policy framework. These interventions sought to address

the apartheid legacies of capital intensive industries and “poor productivity” (Black et al, 2016:6). Job creation and the reduction of unemployment, poverty and inequality are key to industrial policy outcomes.

The overview of 12i and MCEP suggest that there is still a way to go to shift financing quite decisively towards highly labour intensive sectors, given high levels of unemployment among low skilled working population. Black *et al* (2016:7) argue that the impact of industrial policy post-apartheid has been “ambiguous” in regard to more labour-intensive sectors. Instead, they suggest that contemporary post-apartheid industrial policy, despite its new and more inclusive objectives, have not had the effect of a significant shift away from the old apartheid pattern of support for “larger scale capital-intensive activities” and heavy industry.

Table 8 shows that there have been steady increases in the share of mostly capital intensive MVA and declines in the share of labour-intensive MVA over the period, 1970 to 2013. The extent to which the structure and nature of financial incentives played a role in this regard.

Table 8: Summary of sub-sector share (%) in manufacturing value added (MVA), 1970-

Sub-sector	1970	1995	2013
Capital-intensive	19.94	27.84	26.28
Intermediate capital intensive	34.86	29.50	32.61
Labour-intensive	32.54	25.26	25.84
Ultra labour-intensive	12.66	17.40	15.27
Mostly capital-intensive ²	54.8	57.34	58.89
Mostly labour-intensive	45.2	42.7	41.1

2013)

Source: Black *et al*, 2016; based on Quantec data.

The relative dominance of applications and approvals of capital investment grants under MCEP, underscores the need to consider carefully the role of incentives in re-orienting the trajectory towards competitiveness in a manner that is not mostly reliant on capital investment.

² Mostly capital or labour-intensive combines the two (2) subcategories in each case

History suggest that the benefits from new technologies may only be derived if “...organizational structures are reconfigured...” in order to extract these benefits purposefully (David & Wright, 2005 in OECD, 2005: 12). They cite the example of the electrification of American factories which was realized nearly 30 years subsequent to the rise of a “...new generation of managers...” with the capabilities to design and implement “.... new work practices and redesigned factories”. This view reinforces the point made in the MCEP rapid appraisal (2016) that when local companies do introduce new machines and equipment, it takes a while for the immediate improvements to be visible given the lag time in bringing management and supervisory skills in line with the requirements of the new technology. Similarly, even where firms had larger orders post-MCEP, these could not be filled expeditiously given the lag time in reaching operational efficiency.

However, there are manufacturers who acknowledge that there is a need for business to “...improve the fundamental skills of running a factory, planning production and maintenance, optimizing inventory and run lengths while meeting customer requirements.” (Manufacturing Circle, 2017: 40). These elements of “poor management and first-line supervision” practice (2017:40) relate directly to how efficiently a plant is being run, and how both capital and labour productivity may be improved contributing to multi-factor productivity (MFP). Thus, capital equipment without an enabling operational environment with modern management practices, is not a complete solution.

Thus, the provision of financial incentives that may lead to capital deepening, may not fully extract the productivity benefits in the absence of a more holistic approach towards modern factories, that combines “...people, products and processes.”. The configuration of MCEP incentives attempted to address this challenge; yet the responses of recipient firms have

remained uni-directional. It is therefore incumbent on government, business and labour to assess more inclusive trajectories to improved productivity and competitiveness.

It is in this regard that the deepening of best operating practices (BoPs) at workplace level through productivity support programme is vital. Thus, WPC provides a tried and tested approach to the 'making side of a business', and as argued by Kruger & Steenkamp (2008:v) efficient operations management benefits all aspects of productivity, including cost reduction, revenue increases, reducing capital investment and a driver of firm-based innovation. The WPC collaborative model bridges the employee-employer, so that a "lean and mean" interpretation of productivity does not become "red flag" for labour and blunt tool of exploitation by business. Thus, the relative shares of government funding on aspects of competitiveness, including capital investment and non-capital investment elements, may have unintended consequences, and drive industrial policy outcomes into inevitable economic "potholes".

The OECD (2015:14) provides another interesting lens to understand the consequences of policy choices in the allocation of incentives. It raises the challenge of "incumbency", where established firms are often more advantaged than new or entry-level firms. It argues that the incentive policy agenda needs to provide a "...level playing field...", and not unnecessarily advantage incumbent firms over young firms and start-ups (OECD, 2015: 14). In the South African context, the privilege of incumbency in the allocation of incentives, manifest itself between older, established and mostly White-owned firms and emerging, mostly Black-owned young firms. Thus, complex administrative systems, and eligibility thresholds tend to favour incumbency, necessitating a plethora of parallel incentive sub-schemes for emerging (read Black) firms. However, if these sub-schemes are not customized

to meet both the financial and non-financial needs of emerging Black business to succeed in the “making side of business”, they are also on their way to an economic pothole.

Finally, the provision of financial incentives to underpin the transition from low to higher value added production systems in manufacturing is necessary, but not sufficient. An ecosystem of financial incentives that aid all aspects of the modern manufacturing enterprise is required. For South African firms to compete effectively on the local, continental and global stage require the ability to design and run its factories well, the implementation of collaborative management practices and quality products at the most competitive price.

A sad reminder of the challenges of contemporary manufacturing and operations management is the recent listeriosis crisis. Investigations are still ongoing at the time of writing, but preliminary indications point towards poor compliance to phyto-sanitary standards at enterprise level, often a result of sacrificing quality at the altar of price. And that trade- off turned out to be deadly for a number of South African consumers.

Conclusions

This paper seeks to elucidate lessons learnt from the development of financial incentives that are not sector-specific, yet are specialized in that they focus on improving firm-based business, management and workplace practices. As a complement to sector-based incentives, such specialized incentive programmes may constitute more long-term holistic interventions towards embedding a culture of productivity; and one that goes beyond the mere injection of capital only to improve the rate of productivity and competitiveness of firms.

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