

## A supply chain and ethnographic assessment of informal micro-manufacturing: A case study of Cape Town informal metalwork enterprises

L.M. Petersen, A.K. James, A.J.E. Charman,  
B. Mackay, P. Court, A. Muteti

### Abstract

*This paper is based upon a component of an informal economy research study conducted by the Sustainable Livelihoods Foundation (SLF) on behalf of the City of Cape Town in 2014. The purpose of this study was to gain a stronger understanding of the Cape Town informal economy of metalwork (includes welding, metal fabrication, and tinsmithing) through a qualitative investigation and supply chain assessment. The assessment was undertaken of 30 informal metalwork retailers, their suppliers, related parties and customers in township residential and more formal industrialised settings across Cape Town. Although small in scale compared to informal foodservice or liquor trading, the informal metalwork sector is an important revenue generator in township economies in Cape Town. The trade has attracted a varied set of entrepreneurs who produce a range of products based on formally and informally attained skills. The results indicate these enterprises bring about enhanced opportunities for promoting value adding, skills development, and employment in the informal economy. Despite this, many metalwork enterprises could enhance business potential through development interventions that promote more suited manufacturing spaces and create enhanced trading locations. It would be prudent for local municipalities to accept the 'informalness' of these enterprises, provide appropriate infrastructure and town planning, and in particular to encourage clustering of independent metalwork enterprises to broaden their collective standing in the township economy.*

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# A supply chain and ethnographic assessment of informal micro-manufacturing: A case study of Cape Town informal metalwork enterprises

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## 1. Introduction

The informal economy is an important contributor to South Africa's total economy and supported 3.65 million non-agricultural livelihoods in 2007 and 34% of all non-agricultural employment in South Africa. Collectively and including agriculture the sector contributes 11.1% of the value of all income earned across all persons (Wills 2009). An important component of this economy is township microenterprise which predominates throughout South Africa, more so in the township context. An ongoing census of over 10,000 such microenterprises across South Africa indicates that the great majority of these grew organically (without external support), serve continuing local demand and act as an incubator for emerging entrepreneurship (Charman *et al.*, 2015). The varieties of micro-enterprises that shape the South African informal (specifically township) economy include liquor retailers, spaza shops, hair salons, educares, street traders, traditional healers and micro-manufacturers. Historically little research has been conducted on informal micro-manufacturing enterprises (MME's) in South Africa which has resulted in knowledge gaps as to the sectors' size and its contribution to employment and economy.

MMEs include a wide range of activities including cabinet and bed making, various forms of construction and fitting, crafting, shoe manufacture, clothing and others. Linked to this grouping, informal metalwork microenterprises play a smaller but potentially important role in terms of creating employment, localized value-adding and support of local enterprise. South Africa's large formal metalwork sector significantly supports the informal metal work manufacturing industry through providing raw materials via prominent supply chains of new and recycled metal inputs. Yet despite such supply advantages, a study on the informal metal working sector of Soweto indicated that local MMEs lacked the ability to expand their business because of a dearth in motivation and drive, the lack of appropriate infrastructure, and limited organizational and technical skills (Nobanda 1998). Research of survivalist

enterprises in Limpopo also indicated the need for training and skills development to aid growth (Chauke 2015).

This study used an ethnographic and supply chain approach to investigate the extent of value adding and skills utilization in the informal metalwork micro manufacturing sector of Cape Town's townships, and assess the extent of its links to related formal sector enterprises. Furthermore it highlights potential local government policy and municipal or private sector interventions that could be implemented for the industry, which may bring about enhanced opportunities for these enterprises.

## **2. Background**

### **2.1 Trends in informality and the informal economy**

The informal economy is a growing feature for many developing countries as a consequence of many issues such as increasing poverty and formal unemployment. Keith Hart first coined the term "informal sector" more than forty years ago based on his studies describing the subsistence activities of the urban poor in Ghana (Hart, 1973). More recently, at the International Labor Conference in 2002 the informal economy was defined as the realm that includes 'all economic activities by workers and economic units that are – in law or in practice – not covered or insufficiently covered by formal arrangements' (ILO, 2002). In 2003 the definition was expanded to incorporate specific kinds of informal wage employment outside informal enterprises, e.g. informal work (Devey *et al.*, 2008). Simply put, informal enterprises can be defined as small-scale, generally unregistered businesses and self-employed individuals, with their work not secured by the law (van Der Heijden 2012). These micro-enterprises usually employ between 1 to 5 individuals and are mostly run by the family.

In the developing country context, the informal sector remains of fundamental economic importance in Africa where approximately 9 out of 10 individuals (in both urban and rural environments) hold down informal jobs (ILO, 2009). Additionally in the 1990's it was estimated that 93 percent of new employment opportunities established within sub-Saharan Africa were in the informal sector (Chen, Jhabvala & Lund, 2001). In 2008, in Kenya and Uganda, informal sector employment had surpassed the formal sector and in Ghana approximately 90 percent of employees are informal (African Union, 2008). Overall in sub-Saharan Africa, the informal economy contributes to 80 percent of the workforce and 55 percent to GDP (AFDB, 2013) consisting of a heterogeneous mixture of sub-sectors across the continent including: trade (liquor, groceries, street food), service (hair and beauty salons), construction, manufacturing (metal, wood), and mining.

According to the South African National Small Business Act of 1996, and Amendment Act (26 of 2003) informal microenterprises are considered to be businesses employing less than 5 persons, having a turnover of less than R200,000 and assets worth less than R100,000. They are considered to be ‘businesses that are not registered in any way, small in nature and are operated from homes, street pavements and other informal arrangements’ (StatsSA, 2007). Research by Kingdon and Knight (2001) indicates that the informal economy in South Africa is fairly small in comparison to other developing countries. They argue that most unemployed workers choose not to enter the informal sector due to the low income earned with a preference to wait for a higher income formal sector employment opportunity. Despite this smaller magnitude, the South African informal economy makes a considerable contribution towards alleviating poverty, supporting livelihoods and allowing for national economic growth. The task of obtaining estimates of the size of the informal economy in South Africa is challenging and complex but existing figures approximate a size of 2.21 million people in 2011 (van der Heijden, 2012) with the predominant population groups involved in the informal economy being Black / African and Coloured South Africans.

From a local perspective, Cape Town (with a population of approximately 3.9 million people) has exhibited some of the largest expansion of working class townships and informal dwellings of all the metros in South Africa averaging an annual 4.3 percent increase between 2001 and 2011, (StatsSA, 2011). Currently 20.5 percent (or 220,000 households) of the total residential dwellings (approximately 1.1 million) in Cape Town are informal. Largely linked to informality is poverty, which can be defined by the approximate lower and upper bound poverty lines of R501 and R779 per capita per month (StatsSA 2014). According to these estimates, approximately 27 million (54 percent) South Africans are living at or below the poverty line (less than R779 per person per month) (StatsSA 2014) potentially suggesting that the informal economy in South Africa could be acting as an economic safety net for poor households. In Cape Town the estimated size (based on QLFS) of the informal economy (excluding agricultural and domestic work) is 145,315 people (4.8 – 6.6 percent of working aged population) at end of 2014 (Ranchhod *et al*, 2015). Whilst Cape Town’s informal economy is small in comparison to other major South African metros it plays a vital role in many livelihoods and aids in reducing the number of people living in poverty by 4.5 percentage points, contributing between R4.3 – R6 billion to the city’s GGP in 2013 (Ranchhod *et al*, 2015). These figures emphasize the localized importance of the informal sector and its significant role – particularly in the township economy.

## **2.2 The township informal economy activity of informal micro-manufacturing enterprises**

Informal small-scale micro-enterprises (SMEs) play significant roles in developing country economies providing employment and entrepreneurship opportunities for millions of individuals (Hillary, 2000). Such enterprises make up many different sub-sectors ranging from trade and services to micro manufacturing. Specifically within South Africa the informal micro-manufacturing sector includes activities such as woodwork, metal work, textile cut-make-and-trim activities. Informal micro manufacturing enterprises (MME's) remain prominent in many developing countries, and are important through their contribution to growth in practical skillsets and potentially maximizing income earning opportunities for participants through value adding practices, trading of specialized labor and local supply / value chain linkages. As such the sector is a worthy recipient of economic development and policy attention. This is demonstrated in research by Hefnawy (2006) of the Egyptian MME sector which indicated that substantial upfront state or private sector investment in such MMEs would potentially enable more job opportunities than investing this same amount in larger and formal manufacturing entities. Their rationale for this is that whilst the number of direct employees within MMEs is few, they tend to support a proliferation of linked enterprises.

However, the issues facing growth of many MME's and in some cases the reasons for their informality include institutional barriers (e.g. regulation, taxation and private property), an inability to compete globally, inadequate technology and infrastructure and a lack of skills. For MME's, most skills are learnt with training through apprenticeships, inherited experience and formal technical education. Research on MME's in Soweto indicated their lack of skills (only 10 percent have received formal training) and their consequent inability to expand to their full potential (Nobanda, 1998). Further, some enterprises struggled with high levels of financial indebtedness. In Hefnawy's (2006) study of Egyptian MMEs, fifty nine percent of MME respondents claimed that a lack of knowledge on marketing and finance was the main business challenge. Additionally the study found that MMEs would only be able to reach their full potential once their networks and work cooperation was enhanced in order to collectively strengthen the enterprises and relieve them of unnecessary burdens.

In order to mitigate this, a strategy of clustering similar sectors of micro manufacturing and other similar enterprises has been adopted (Hefnawy, 2006; Mukim 2011). A cluster can be defined as a concentration of enterprises that are linked geographically and sectorally producing related goods to be sold and encounter the same adversities and opportunities (Nadvi, 1995). Cluster organization has a positive effect on the industry, as they become a locus of ideas and potentially support each other through product procurement, customers

and skills. In fact, evidence has shown that these large clusters of MMEs can be more competitive than larger industries due to their flexibility and responsiveness (Hefnawy, 2006). For example, instead of MMEs purchasing raw materials individually it would be more resourceful and beneficial to co-ordinate and procure with other like-enterprises to ease and increase their collective access (Mukim 2011).

Within the informal manufacturing sector cluster of Kenya, increasing levels of innovation have emerged amongst MMEs due to market competition, an attitude of inventiveness and a drive to stand out and create unique products (Bull *et al.*, 2014; Sonobe, Akoten and Otsuka, 2011). Proliferation of the Jua Kali cluster has resulted in smaller clusters forming from the graduates of Jua Kali. For example the Racecourse cluster (Kenya) of furniture and art makers and the Kariobangi cluster of machine-makers (Bull *et al.*, 2014) have emerged as a consequence of similar MME agglomerations.

Conversely, the operational and trading spaces of many informal manufacturing enterprises such as those found in South African township settlements occur within private homes or on public spaces such as street pavements. Whilst potentially lowering overhead costs through rent avoidance commonly such informal premises are unsuited for MMEs with respect to working and marketing space and limited access to utilities such as electricity, water and other vital amenities. For example, a large number of enterprises in Durgapur, India are operating on non-regularized land resulting in a lack of services; electricity, sewerage and also there is a risk of being closed down by the government. This in turn negatively affects their production and sales (Mukherjee, 2003).

Within South Africa there is strong anecdotal evidence of MMEs operational within the informal economy, and whilst research work on the sector has increased in recent times little is published on these specific activities. Considering the high levels of formal unemployment, the need for localized economic development within the township context, the potential scope of this sector to create jobs and knock-on enterprises, operate in clusters and bring about skills development, an ethnographic study of this sector and the supply chains which influence its operations is overdue. This paper is based on learning from within a broader informal economy study for the City of Cape Town in 2014, and details the findings of empirical research on informal metalwork enterprises in the city.

### **3. Methodology**

The study is an ethnographic and supply chain assessment of the business operations of informal metalwork enterprises operating primarily in the township context. The ethno-

graphic process of immersion (spending up to half a day per interviewed enterprise) was used in order to grasp the lived reality of micro-entrepreneurs within the sector. Researchers spent time in each business and in trading environments, conversed with operators and customers and took photographs and written recordings of observations and discussions. We further examined supply chains in order to understand supply processes, gain understanding into sector and enterprise competitiveness, and assess sustainability and efficiency of business processes. Such analysis within sectors of the informal economy as conducted for traditional medicines in Cape Town markets (Petersen *et al.*, 2014) can be particularly beneficial in unpacking market conditions which in turn influence development policy and investment in emerging markets.

The key physical, commodity chain, and market characteristics of these enterprises were investigated with a view to gaining strategic insight for guiding future policy and investment approaches.

The main research activities in this research were:

- 1) Conducting specific interviews and observational processes with 30 informal metalwork and related enterprises throughout Cape Town – specifically in Browns Farm, Samora Machel, Nyanga Junction, and Delft South – in order to gain an in-depth perspective of such business operations;
- 2) To conduct further interviews of suppliers (formal and informal), related logistics, policy makers, and others related to the sector including 50 informal metalwork consumers.

### **3.1 Field research**

Following guidelines for comprehensive value chain investigation written by Hellin and Meijer (2006) the field research was undertaken from July to September 2014 and concluded after thirty face-to-face interviews with metal work enterprise owners were completed, whereby broader trends became established and repeated. The non-random nature of the research meant that the surveys were biased towards enterprises visibly operating in the street context (for ease of access during fieldwork). The interviews were conducted in Browns Farm, Gugulethu, Samora Machel townships as well as along more non-residential sections of Imam Haron (Lansdowne) Road. A subsequent case study approach (two enterprises operating at differing scales) was utilised to assist to triangulate and confirm survey data, as well as providing additional depth to the study, especially for information such as business income which can be difficult to ascertain in a short survey process. A range of related enterprises including suppliers, logistic enterprises such as transporters, City of Cape Town officials and fifty informal metalwork clients were also interviewed in the process. The

various aspects of field data collection allowed for more comprehensive understanding of the industry. All microenterprise and consumer interview data were compiled into a Microsoft Excel database and analysed for trends. The questionnaire focused on the following areas:

- Location of operations – both manufacturing and retailing
- Length of time in operation
- Business assets and equipment
- Stock procurement, management, and logistics
- Products sold (for example; custom orders, general retail trade, repairs)
- Supplier enterprise names and details
- Volume of trade per week / month
- Periods of highest trade demand
- Perceptions on City of Cape Town permits, legislation, service delivery
- Enterprise challenges

### **3.2 Related sector and consumer discussions**

The researchers also conducted interviews and discussions with various role players related to the informal metalwork sector. These included transport providers (informal taxis), wholesalers (formal and informal), and CCT officials involved in informal trade, permitting and law enforcement. Furthermore, fifty potential consumers were interviewed. These participants were interviewed at the Philippi Train station, which is a high concentration of residents who might or might not purchase products from informal metal workers. Either way, these are residents who live and move in areas where the informal metal workers work and display their goods. Questions asked related to purchasing habits, general demographics, motivations, pricing issues, and customer preferences.

## **4. Results**

Of the thirty MMEs to be interviewed the predominant business types were twenty welders who specialized in electrical (arc) welding of steel into a variety of customer requested products such as gates, burglar bars and shack/shed structures. The remaining enterprises were prefabricated shack (hokkie/zozo shack) builders (eight individuals), and one each of a braizer and appliance repairer, and a tinsmith.

The study revealed that, while supply chains in the collective informal metalwork economy have the potential to be fairly short, they can also support a formal and informal economy of scrap metal (from informal reclaimers to scrap dealers), consumables supply, transportation, electricity, water, real estate provision and labour. Figure 2 shows the supply chain.

### **4.1 Raw material production and wholesale**

The informal metalwork sector sources any new material inputs such as raw and finished steel products such as metal round, square and flat bar, reinforcing rods, sheet metal, corrugated iron, bolts and nuts and other items from the formal economy. Steel smelting is not carried out in the informal economy environment and the sector is unable to produce any more than niche quantities or products of metal. As such the market for new materials is met by the formal economy, which is dominated by multinational virgin steel manufacturers such as ArcelorMittal, Scaw Metals and BHP Billiton, or reclaimed materials manufacturers including the South African company Cape Gate. Enterprises such as these collectively produce large quantities of material, which is supplied into the wholesale sector for trade.

Suppliers (i.e. formal economy wholesalers) of raw steel and other metal products vary, but are dominated by a small number of large wholesale enterprises such as SA Metal, Metal Sheet, Afrox, and general hardware dealers. These are mainly operating from industrial areas outside of the immediate township location as well as in Cape Town working class localities including suburbs of Epping, Athlone and Blackheath. These suppliers are large-scale formal business enterprises that demonstrate considerable capital investment. All have warehouses, large metal yards, forklifts and specialized vehicles or transport and tend to stock bulk quantities of varied types of steel items. These items are traded in pre-determined lengths or sizes, which are purchased by the sheet or unit to be cut into specified requirements for the customer.

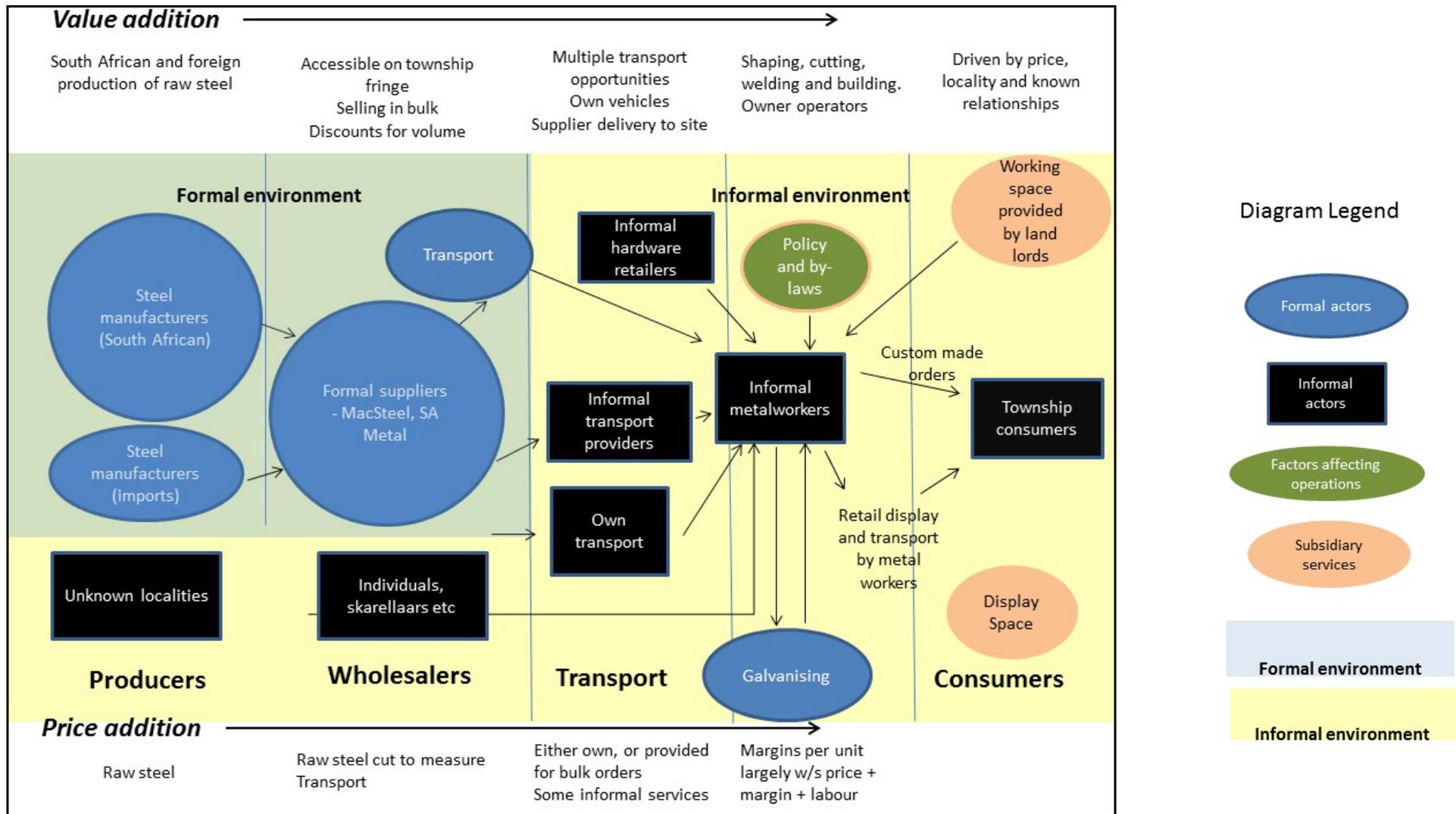


Figure 2: The supply chain for the informal metalwork business based on data collected from thirty informal metalwork operators

Wholesale enterprises tend to trade primarily in steel and manufacturing materials only, meaning that most entrepreneurs source subsidiary and related items such as welding rods, gloves, flux and other inputs elsewhere. Beyond cutting, none of the wholesalers conducted significant value adding on site. Various enterprises would arrange for metal galvanizing for clientele (a process that renders steel to be increasingly rust-resistant), but such operations generally happened at alternative sites – in subsidiaries and independent outlets. The comparative advantage for formal economy wholesalers is their ability to trade in large volumes of diverse metal products at low margins. Their scale of operation (and economies of scale) can be considered unachievable by any of the informal metalwork enterprises encountered in their current forms.

Discussions with wholesaler staff revealed their strong understanding of trading to the informal economy, and strong familiarity between staff and those metal workers operating informally. All of these wholesale enterprises offer paid and sometimes free goods transport (for minimum scale business orders – generally R2,000 or more). This service is commonly utilized by informal metalworkers and relied upon as an important logistical support activity. Providing transport of purchased material inputs is a key business benefit to attract informal metalwork customers.

Most of the micro-entrepreneurs in the study make purchases on an individual and cash basis from these outlets. A few of those interviewed were paying invoices on delivery through direct deposits or in one case, internet banking, and one claimed to have a monthly account with a supplier. Generally due to limited storage space and cash availability, over half of the enterprises conducted stock purchases on at least a weekly basis, with some purchasing daily. The average amount of money spent on a stock purchase is R2,660 based on the reported figures of 28 respondents. However, some enterprises will spend over R5,000 per visit through the consolidation of their individual customer orders to take advantage of the free transport provided by the wholesalers.

An alternative source of materials supply is the second hand and recycled metal market. In this case informal metalworkers purchase reclaimed steel as traded by informal waste pickers and scrap collectors (also known as *skarrelaars*), in some cases also procuring from second hand scrap yards. Informal reclaimers tend to be economic survivalists with the reclaiming of metal being their livelihood source. The products they trade tend to originate from both legitimate and illegitimate sources (such as stolen municipal infrastructure). *Skarrelaars* tend to operate on foot, sometimes utilizing reclaimed shopping trolleys. Some make regular visits with reclaimed materials to the informal metalworkers they know, others trade items opportunistically when they encounter traders in their day-to-day movements around the city.

Various products are reclaimed into the sector – including raw steel, old appliances (which can be repaired or cannibalized for parts), and miscellaneous items of value that are stockpiled by informal metalwork entrepreneurs. The quality of the items traded is highly variable and requires differing levels of preparation and modification for repurposing into new items. However, the cost savings of paying a nominal fee to informal collectors – generally R20-R100 for up to 50kg of raw materials – can bring about substantial profit opportunities through enhancing retail margins, even if more work is required to modify the materials into new products. Such trades tend to happen opportunistically, and none of the informal metalworkers interviewed relied on this supply source as the mainstay of their operations.

#### **4.2 Formal and informal transport serving informal metalwork**

Transport is of high logistical importance to the sector, with enterprises commonly requiring transport of goods both from the wholesaler to a workshop and subsequently to deliver manufactured gates, burglar bars, and zozo shacks to clients.

The logistics of operating an informal metalwork microenterprise can be challenging, with an important consideration being access to equipment and suitable vehicles. Owning a vehicle is relatively common amongst the sample, with 14 of the 30 businesses reporting this - primarily bakkies. The remainder commonly relied on transport provided by wholesalers, or hired appropriate vehicles from other welder enterprises within their networks. These are hired at set fees for the vehicle, for the journey or day. In this case the service is cheaper than the ongoing operating costs of private vehicles, and assists in enhancing the scale of informal metalwork operations through allowing procurement of larger amounts of stock. Some without access to vehicles reported the use of two wheeled foldout trolleys for moving large items such as fridges and appliances for repair. These operators also used various transport modes including minibus and *amaphela* (sedan) taxis where necessary.

#### **4.3 Metal product manufacturers (informal)**

All informal metalworkers both manufacture specific orders for clientele and conduct retail trade to the public. Welders take customer orders and prerequisite financial deposits. Once a deposit is made (50 percent of the price of the specific item or order) the raw materials will be purchased by the artisan and the orders made. Once made, in the case of zozos, burglar bars and gates and other fittings, these will be installed at the required site. Upon completion of works the balance of the account is due for settlement.

Virtually all transactions are in cash, generally paid in two instalments – a deposit before the product is made and a final payment once the product is completed. In some cases manufacturers report having to take payments in instalments where the customers claim not to be able to settle their accounts immediately after installation. Conversely some metalworkers and tinsmiths sell to passing foot traffic through marketing readymade products, and occasionally on consignment.

#### **4.3.1 Demographics**

The sector is male dominated. Twenty-five (83 percent) of the enterprises were owned and operated by males and five (17 percent) by females. The females operated exclusively in the street sales of prefabricated zozo shacks and worked in conjunction with their husbands who were the predominant manufacturers. Furthermore, the sector reflects an important business opportunity for foreign nationals. Fifty percent of these enterprises (15) were operated by South Africans, with foreign nationals from Mozambique (7), Zimbabwe (5) and DRC (3) representing the remaining owners. South Africans dominate in the manufacture of zozo shacks. This is possibly due to the lack of skills as many of those doing welding work claimed that their skills were gained from their countries of origin.

#### **4.3.2 Equipment**

The most common piece of equipment owned by the respondents were arc welding machines. All owned a range of hand tools appropriate to working tasks which are carried about in a range of toolboxes and bags. Whilst the majority of enterprises were arc welders reliant on electricity, a small number of oxy-acetylene welders also possessed gas cylinders (on a deposit-return basis) to operate blowtorches.

All of the interviewed enterprises indicated that they purchased various goods from within the residential township environment as part of their operational processes. This includes small tools, inputs (such as welding rods) and parts that might be required for a specific job. The scale of local procurement by these informal enterprises is quite limited compared to the reliance on formal sector suppliers. MMEs shared a general preference to purchase tools and materials from the wholesalers who had lower prices compared to hardware retailers in the township.

The retail trade of manufactured items is commonly promoted through the use of signage (see Plate 1).

### Plate 1: Signage for informal metalwork enterprises



Photo: L. Petersen

#### 4.3.3 Income sources

Twenty-three of the 30 enterprises reported that the metalwork business was their primary source of income. Those engaging in alternative income strategies either receive government grants, own a small business (retail or barber shop) or do casual construction labour (see Table 1).

**Table 1: Alternative livelihoods**

<b>Income source</b>	<b>Participant count</b>
Welding as main source of income	22
Receive government grants	1
Government pension	1
Have other businesses (one selling vegetables, one running a barber shop and the remaining participant selling gas)	3
Casual labour: painting and construction	3

Of the sample interviewed, seventeen percent indicated that they had access to some sort of credit. As with other informal economy activities of this study, in almost all cases the credit was not directly related to the business enterprise and rather included retail store accounts such as Total Sports, Woolworths and Jet. The remaining eighty three percent did not have or reveal access to credit. All businesses operate in cash for most aspects of trade. One reported that access to formal banking allowed him to take on bigger jobs such as fixing the windows on a school. Despite the non-survivalist scale of some enterprises, which was demonstrated through their ability to procure

supplier discounts and free transport, none had credit accounts with suppliers and all would pay upon presentation of an invoice.

Aside from the tinsmith, all enterprises interviewed conducted their retail trade on a fifty percent deposit basis, claiming the outstanding balance upon completion of works. This was a source of considerable angst amongst operators who claimed regular problems of non-payment of account balances. In some cases clients would make (allegedly spurious) complaints about the perceived poor quality of manufactured goods and in attempts to avoid final payment. In another case a zozo shack was built on-site, only to be removed in the middle of the night by the client to an unknown location – in order to avoid paying the final financial instalment.

By giving customers a deposit payment option the individual enterprises face some financial risk. Conversely this is a standard industry practice and those who do not comply would fail to gain any business, as clients do not like paying the full price up front and will shop around for more beneficial payment terms.

#### **4.3.4 Trade times**

Peak trade is month-end when clients have received salaries and income payments. Claims of the busiest time of year vary. Some respondents (such as burglar bar manufacturers) considered winter to be the best season for work as the longer nights bring about an increase in crime and therefore demand. Others claim that summer is better for trade as more people are working and therefore have money.

#### **4.3.5 Estimating enterprise turnover**

Enterprise turnover is varied, and influenced by the amount of time traded in a given month. This is influenced by metalwork business owner preference (some with other jobs might not work during the week), site locality, and activity type – there is considerable variation in business type, and the place of operation (indoors or outdoors) and seasonality.

Enterprise turnover is also influenced by where informal metalworkers procure their supplies, and the amount of time and effort (labour) that is invested in manufacture. For example an informal metalworker that procures ready-made gates from a scrap reclaimer may sell them immediately with little effort, at substantial profit. Conversely an informal metalworker making a high quality product such as a gate with all new materials will incur substantially higher costs, which can impact on profitability. In the survey sample the great majority of enterprises are profiting in the vicinity of R5, 000 per month or more, from revenue of R8 500 – R13 500 in trade per month.

Deeper analysis of selected “typical” survey data, and the more diverse case studies reveals a reasonable range of turnover and profitability figures. Table 2 below includes a range of enterprises with volume, turnover and income comparisons.

**Table 2: Calculated averages for estimated turnover and profit for various informal metalwork enterprises**

	Cost Per Unit	Retail Price final product	Profit Margin	Margin %	Units per month	Monthly Revenue	Monthly Profit (Gross)
<b>Burglar bar manufacturers</b>							
Window bars	R350	R750	R400	54	9	R6,750	R3,600
Door gates	R400	R800	R400	50	4	R3,200	R1,600
Sliding gates	R1,350	R2,700	R1,350	50	2	R5,400	R2,700
Total (based on all production listed above)						R15,350	R7,900
<b>Fridge and appliance repair</b>							
Fridge repairs	R250	R520	R270	52	7.5	R3,900	R2,025
Fridge sales	R500	R1,250	R750	60	5	R6,250	R3,750
Washing machine repair	R650	R900	R250	28	3	R2,700	R750
Total (based on all production listed above)						R12,850	R6,525
<b>Zozo manufacture</b>							
One room zozo (3.4x2.5m)	R1, 400	R2,800	R1,500	53	3	R8,400	R4,500

**Notes:**

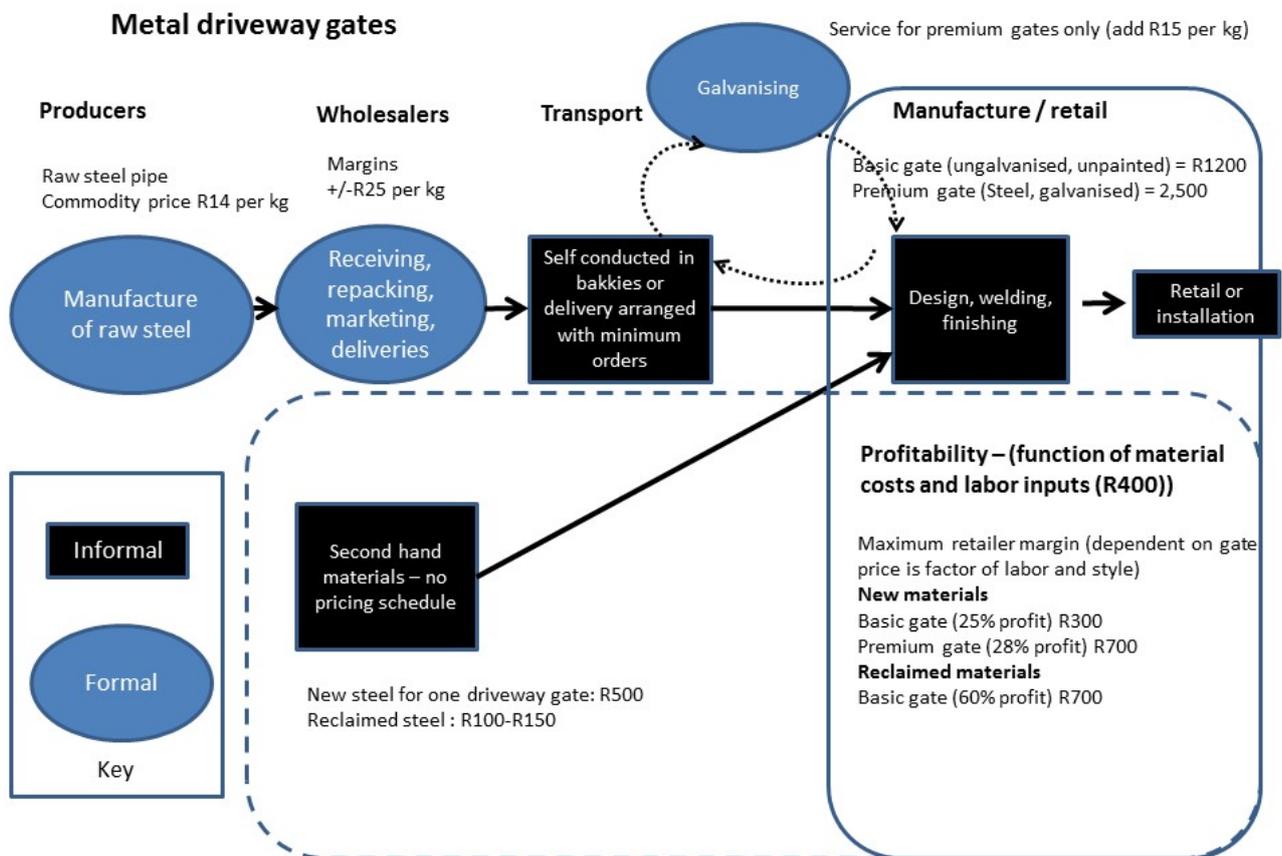
The revenue, cost and profit figures reported in the spreadsheet should be interpreted keeping the following in mind:

- Where possible costs of inputs were obtained directly from the suppliers of the products.
- The calculations assume the entrepreneur works full time on the enterprise and are based on sector averages. No adjustments were made for fluctuations in demand owing to different seasons, which traders reported were a factor that they considered (year averages were taken for variations of seasonality).
- Profit figures are purely gross profit i.e. price less cost per unit, because overheads faced by the business were beyond the scope of the survey, except in cases where traders voluntarily offered the information.
- All costs are the costs of purchasing that product from the supplier exclusive of the associated overheads such as transport and storage expenses.

#### **4.3.6 Value adding and profitability**

The general profitability of these enterprises reflects a function of both labour input and costs of raw materials. Cost savings through free transport, low rent, labour-saving and sourcing cheaper inputs can bring about substantial profitability increases for each micro-enterprise. The following financial flows example of driveway gates (Figure 4) demonstrates the areas of value adding and potential profitability. In this case if input materials (such as raw steel) can be procured from informal sources (thereby lowering material costs, and cutting out further transport costs) then profitability on final products can be quite high (up to 60% of retail pricing), whereas relying on new materials substantively raises costs and can more than halve profitability. The enterprise gains much of its costs through its interaction with formal enterprise – galvanizing is a considerable cost and technologically entirely outside the hands of these informal businesses.

**Figure 4: Example of financial flows and areas of profitability for the manufacturing of metal driveway gates**



Source: Authors

In general the MMEs in the study operate beyond economic survivalist levels as demonstrated through their stated incomes, ownership of increasingly specialized assets such as tools, prior work experience and skills. In some cases, operators had the ability to conduct work outside of the informal economy in formal operating settings (such as when made possible through a bank account). In addition the longevity of the businesses averaged around nine years with the oldest being 25 years of age). An evident cost saving strategy is using recycled metal for products which links this sector with the informal recycling sector. However challenges such as short payment by customers present bring about considerable cash-flow concerns, especially considering the high cost of manufacturing inputs. In some cases operators were able to earn substantially more if they were able to find paid work outside of the informal context, including private clients in the suburbs or sub-contracting to other enterprises that had large government and industry contracts. An aspect linked to their access to the formal market is access to credit and bank accounts. At present few of the metalworkers have bank accounts or access to credit – this potentially serves as a major hindrance to formalization.

#### **4.4 Galvanizing – further value adding**

The process of galvanizing renders raw steel chemically resistant to oxidation and rust, substantially enhancing metal product life. For externally mounted gates, burglar bars and roofing this process is commonly undertaken. Galvanizing is a formal sector activity requiring substantial capital investment into property, dipping tanks and chemicals – it can only take place in a processing facility at the last stage of the manufacturing process. It is expensive, and tends to nearly double the value of the subject item (however it is a value-for-money service as it potentially extends metal life by three to four times the equivalent untreated product). Less than half of informal metalwork clients are willing to undertake the additional cost – primarily due to the cost of the process and the limited price points their clientele are willing to pay. Where undertaken galvanizing companies tend to offer a ‘door to door’ service, including collection, galvanizing and returning products to the metalworker. Due to the generally substantial economies of scale from these enterprises and the high financial value of the service, the cost of transport is competitive and many informal metalworkers do not transport materials themselves.

#### **4.5 Landlords and operational space**

Informal metalworkers share a common challenge of inadequate working and retailing space. In many cases they work from their own private homes, but also make use of public pavements. It is apparent that the residential spaces from which informal metalworkers operate and trade may constrain profitability due to noise complaints, exposure to weather, criminality (on public pavements) and strained neighbour relations. The use of public pavements is commonly rented from adjacent private landowners who can also sub-rent their electricity and water access. Electricity costs vary according to usage, from R50 to R200 per week or more depending on frequency of use, access, reliability, and scale of illegality (of the sub-lease and / or the original connection). The high cost of this service (linked to the significant energy demands of the enterprise) was a common complaint. As with other informal enterprises reliant on informal economy utility provision, vendors complained about paying for electricity only to discover that the owner subsequently had no units left to provide the service.

Most enterprises who used electricity were renting the service from neighbours in private residences (14 individuals), whilst only six had their own direct connections. Ten enterprises claimed not to need electricity for their operations (primarily zozo manufacturers). Most were not interested in water access for their enterprises – only seven highlighted that improved water access would help their enterprises. Generally, water access was reasonable, with 23 of the enterprises currently having access to water close by, outside of their enterprises. Twelve enterprises noted a problem with operational space – requiring enhanced manufacturing suitable

premises. As home based, informal enterprises most had no permits to operate. None questioned felt that the lack of a trading permit would prevent them from operating their business.

#### **4.6 Customers**

Informal metalwork is a specialized activity the products of which are sold for high consumer prices. Microenterprise respondents reported that the average number of customers per month is 12. Reported customer numbers are also influenced by the type of enterprise – tinsmithing attracts regular retail trade and repeat customers vs producing tin zozos or driveway gate manufacture which would be a very occasional purchase. Welding of burglar bars is the most common business activity and a regularly demanded product. The South African township context of high levels of property crime has meant a consistent demand for window bars and burglar gates.

The average purchase amount per sale per customer across the sector is R1, 050. This rises to R3, 000 for prefabricated shacks, averaging at R500-R1, 000 for burglar bars and as little as R40 for tinsmithed pans. The average purchase prices for burglar bars varied considerably, from R200 for a single window burglar guard, to R4,350 for a full security package for a house.

The consumer study revealed a reliable and fairly substantial demand for informal economy metalwork. Whilst tinsmithing occupied a fairly small niche and to some degree effectively competes with cheaper foreign imports, the demand for burglar bars and gates was considerable. Similarly there is a substantial need for cheap housing units, and the manufacture and sale of zozo shacks serves an important community function.

Based on a random survey of 50 potential consumers across age (18-60 years), gender (25 male/25 female) and ethnicity (Black African/Coloured) familiar with informal metalworker activities it emerged that the 37 had at some point purchased items from informal metalwork businesses, with local customers primarily living in the residential township context. All claimed to purchase burglar bars from informal welders. None reported utilizing tinsmithed items or zozo manufacturers.

Both males and females made purchasing decisions for these products and the reasons behind their purchasing decisions relate directly to affordability and close proximity to home. These factors reinforce the predominance of informal metalworkers in the township context as opposed to more formal localities.

## **5. Discussion: Supporting the operational environment for township informal economy metalwork enterprises**

Many of the entrepreneurs in the informal metalwork sector appear to demonstrate reasonable business sustainability and have skills that are locally in demand. Many operate considerably beyond economic survivalist levels with their general wellbeing witnessed in the reasonable scale of asset accumulation (such as vehicles and other capital investments). This position is reinforced in the literature by Hefnawy (2006) in Egypt where it was noted that investment in MME's would create more job opportunities than in larger business entities, as MMEs tend to support the proliferation of enterprises. Although this sample is limited and a larger study is required to understand the nature of the sector, it is apparent many such entrepreneurial enterprises operate within township locations.

Three major sector and business environment characteristics feature in this discussion. Firstly, unlike many other township microenterprises competition amongst township MMEs appears relatively limited and the sector has reasonable local growth prospects. Micro-entrepreneurs appear able to capitalize on a range of component inputs and labour activities, although the lack of optimal trading places may be problematic for gaining access to customer networks. Secondly, the issue of creating sufficient operational space is a significant concern for growth of businesses in the sector as well as general public health and safety. Finally, the interaction with municipality reveals scope for interventions that support these businesses – especially in terms of clustering as seen in Kenya (Bull *et al.* 2014) reduces their potential for negative residential neighbourhood impacts.

### **5.1 Local market opportunities**

Field observations reveal a relative sparseness of informal metalwork micro-enterprises (as compared to fast food or grocery retailers) in the township context, which is possibly a reflection of the relatively high level of skill required to conduct this business activity which in turn could be seen as potential barriers to entry to the sector. Despite the lower local incidence of these businesses, the township appears to be a relatively opportune business environment for MME operations, and certainly presents an important market opportunity to formal sector steel suppliers who feed raw materials into this market. Informal economy metalworkers occupy a range of niches from informal construction, budget furniture items and ready repairs. Price variation for finished products also appear increasingly commonplace, potentially as a consequence of a greater variety of source materials (new, second hand, imports etc.) and also a reflection of the cost of labour, which can vary considerably depending on the artisan, job type and individual. Compared to other common business activities (such as retailing liquor or groceries) there appears to be considerable

room for development and growth in the township MME sector. Interviews with MME customers revealed the importance of reputation as an influencing factor in purchase decision making. This reduces the pressures of direct price competition as being increasingly experienced in township retail grocery markets (Liedeman 2013).

## **5.2 Operational space considerations**

Despite many informal metalworkers claiming to be relatively content operating from their home environments, the daily operations of these enterprises can be quite unsuited to domestic homes where many people and children reside and recreate. It was apparent through the field research that residential based working areas bring about storage, operational and safety limitations for these enterprises – yet these operational conditions are a common characteristic of the low income and informal residential spaces in which they exist. An important consideration for operators in this environment is the ability to maintain such operations without complaints or severely hindering law enforcement. Whilst municipal officials currently tend to ignore such residential businesses there remain potential legitimacy challenges for these enterprises. Where some of these enterprises, such as those trading from dedicated shipping container premises are operating, the stated issues around limited space are less problematic. Similarly such enterprises are largely isolated from residential areas and are able to take advantage of their location with respect to operations, noise and locality. The successful use of operational space through clustering of MMEs in Kenya should be used as an example from which to learn and apply within the MME spatial context of Cape Town (Bull *et al.* 2014; Sonobe, Akoten and Otsuka 2011). Locally, the Ithala developed Business Park in KwaMashu, KwaZulu Natal represents an important business development approach for the informal metalwork, car mechanic and panel beating sector whereby dedicated semi-industrial space was developed and rented to such enterprises at subsidized rates. Such developments have genuine potential to draw together and synergize informal metalwork enterprises, and also enhance potential legitimacy issues with respect to town and municipal planning.

## **5.3 The operational environment and municipal services**

Questioning of informal enterprises pertaining to the City of Cape Town focused primarily on issues of municipal relevance, such as general service delivery including access to trading sites, electricity, water, permits and law enforcement. The majority of microenterprises interviewed revealed limited interaction between themselves and the City of Cape Town (23 of the 30 enterprises claimed very little or no interaction with City officials). However within the commonly deeply informal nature of the township context it is possibly reasonable to expect such limited interaction. This finding could be interpreted as enabling for such entrepreneurship activity – revealing that limited local government interference has potentially allowed the opportunity for micro-

enterprise activity (with enterprise commencement in otherwise residential areas and street-scapes occurring due to state absence effectively creating a free market opportunity).

Conversely a potentially disabling factor is that the great majority of enterprise owners claimed to know nothing or very little about the services the municipality offers that could help them. (Only six respondents claimed to know the City of Cape Town municipality “well”). In other cases City officials were viewed with disdain or suspicion by those who operate informal businesses who reflected on anecdotal experiences of law enforcement officers enforcing environmental health by-laws on street operations or general perceptions of a lack of support for their operations.

A municipal government presence was generally noted throughout all sites – primarily utilities such as street lighting and services including street sweeping and refuse collection. Similar to the fast food sector, one of the critical business environment themes that emerged was the lack of security for enterprises. The expensive nature of the equipment required, combined with commonly working from a vehicle and on open streets makes MMEs particularly vulnerable to losses from theft. Most respondents highlighted their personal experiences of crime as a problem in conducting business with all agreeing that they needed enhanced support in matters of safety and security (of which local Law Enforcement is a municipal function).

Increasing municipal interaction must however be mindful of potential tensions between giving no attention which could be interpreted as a free-market approach (or conversely as ‘abandonment’) by participants, and having an overbearing presence which may conversely stifle entrepreneurship in the sector. Going beyond previous studies such as those in Soweto and Egypt which recommend local government focus on developing skills and knowledge in marketing and finance (Nobanda, 1998; Hefawny, 2006), this study would also encourage municipal focus on land management, zoning, dedicating business land and facilities / utilities for supporting enterprise clustering as important business development considerations.

## **6. Conclusion and recommendations**

It is evidenced from this study that informal metalwork has localised importance in urban townships for a range of micro-entrepreneurs who serve local markets. The sector brings about considerable value-adding opportunity (in terms of mark ups and labour inputs) and shares intricate links to formal sector supply chains. The metropolitan municipality, the City of Cape Town would do well in accepting the important role of these metalwork enterprises as job and value creators. The informal nature of the enterprises and the lack of current involvement with the municipal government do not necessarily bode poorly for the sector and many enterprises are demonstrating considerable sustainability. Building on this research stronger knowledge of the sector is required

which implies the need for a more holistic census of informal metalworkers in order to more fully understand the extent of this industry.

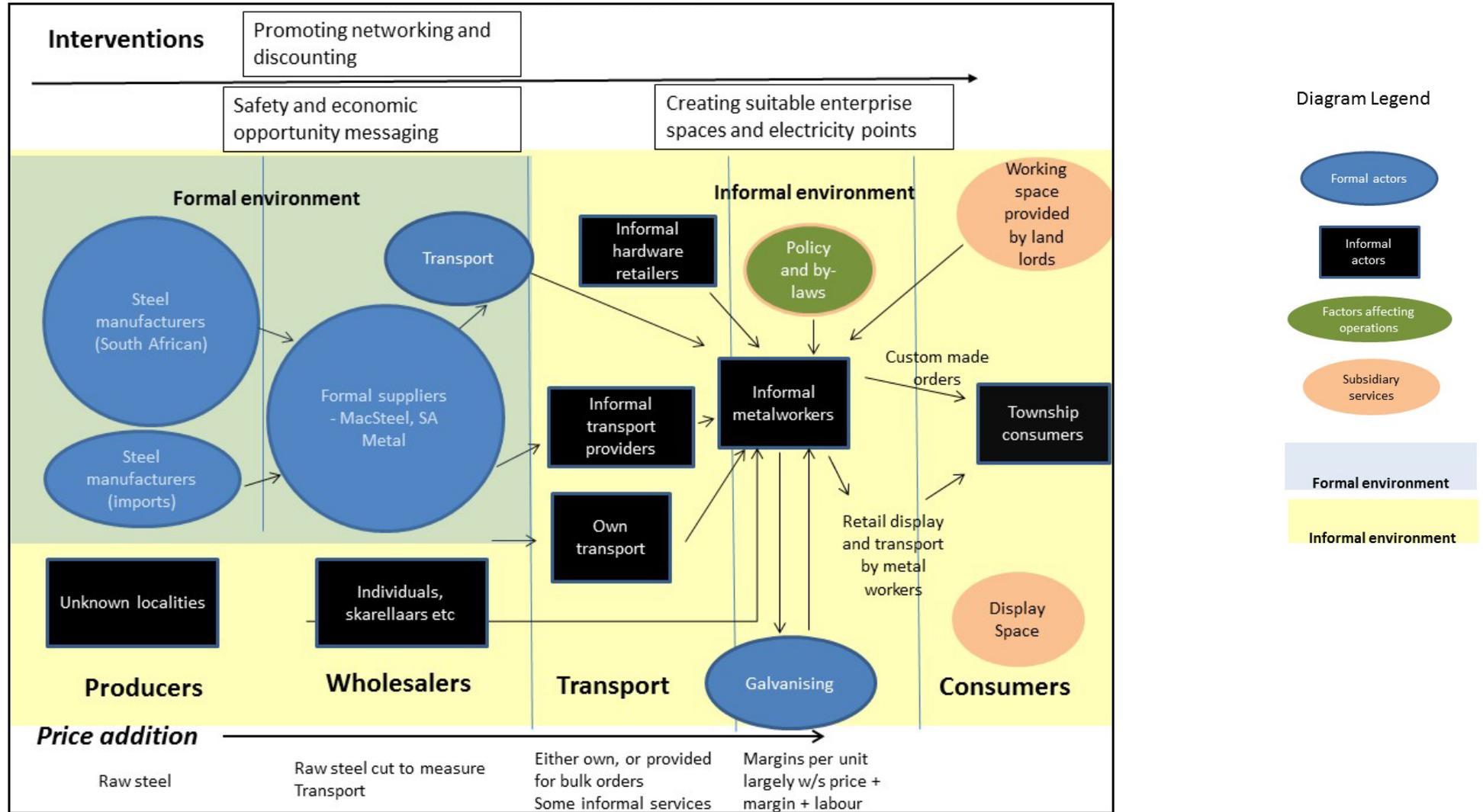
In developing the industry municipal support is required to marry together appropriate working and marketing localities and related infrastructure such as provision of electricity and water. Such interventions could be useful to enhance the broader business environment as space and place is extremely important for microenterprise success. Additionally, the City of Cape Town could more effectively work with prominent formal sector metal wholesalers to promote the interests of informal economy metalworkers including messaging around economic opportunities, city services for their enterprises and health and safety matters.

Township planning requires municipal attention as the current activities of informal metalwork manufacturing enterprises occur in the small spaces of township residential housing and land units, which does not create optimal operational environments for their businesses. Informal metalwork activities bring about significant environmental, town planning and land use incompatibilities for residential living in the township context where such items are made, including noise, and the risks of injury. An opportunity lies in creating new light industrial areas in the vicinity of township markets that can accommodate such metalworkers in a more appropriate environment. It would foster the clustering of similar microenterprises, create a more standardized route for suppliers and product deliveries, potentially allow for greater economies of scale in deliveries, and provide enhanced physical security for these enterprises. Spatial inducements such as availing low-cost light industrial land to draw operators out of the residential setting would simultaneously reduce their individual challenges from lack of space and poor utilities access, and potentially enhance their collective benefits and assist towards microenterprise regularization.

Although not discussed in detail in this study, previous research has emphasized the importance of provision of training for these enterprises (Chauke, 2015, Nabanda, 1998). In the metalwork micro-manufacturing sector, practical skills training is obtained through on-the-ground apprenticeships but there is a lack of formal management and financial training. Therefore, specific training programs that serve individual MME business management needs should be developed and implemented by public or private agencies.

These proposed policy and management interventions would allow for enhanced economic development of the informal metalwork sector and increased job creation by allowing these microenterprises to expand to reach their full potential.

Figure 5: Modified supply chain including proposed interventions (along top of diagram in boxes) for the township informal metalwork economy



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