Conference 2006

DPRU
Development Policy Research Unit

TIPS

Perceived Barriers to Entry into Self-Employment in Khayelitsha, South Africa: Crime, Risk, and Start-up Capital Dominate Profit Concerns

Paul Cichello, Colin Almeleh, Liberty Ncube and Morné Oosthuizen

**Accelerated and Shared Growth in South Africa:
Determinants, Constraints and Opportunities**

18 - 20 October 2006

**The Birchwood Hotel and Conference Centre
Johannesburg, South Africa**

Perceived Barriers to Entry into Self-Employment in Khayelitsha, South Africa: Crime, Risk, and Start-up Capital Dominate Profit Concerns*

Paul Cichello, Loyola College in Maryland
Colin Almeleh, University of Cape Town, ASRU
Liberty Ncube, University of Cape Town, DPRU
Morne Oosthuizen, University of Cape Town, DPRU

DRAFT VERSION: September, 2006

In late 2005, in Khayelitsha (a large African township in Cape Town, South Africa), crime was perceived to be the dominant hindrance keeping the unemployed from entering self-employment. This finding is robust to a series of alternative methods of ranking one hindrance as more severe than another. Other severe hindrances include the risk of business failure from one unlucky month, a lack of access to start-up capital, high transport costs, and jealousy within the community individuals face if self-employment is successful. These issues ranked above or on par with profitability concerns and were generally found to dominate concerns over government regulations, intimidation from existing self-employed workers, variable income streams, a lack of specific job skills and/or general business skills, disincentives within the family/kin networks, lowering the probability of getting a better job, and other potential hindrances, even though all were presented on equal terms. In a country facing persistent broad unemployment rates of approximately forty-five percent for Africans, these findings have immediate policy implications. This methodology may also be useful in many developing countries facing high open or disguised unemployment rates or where governments (or practitioners) seek to assist the micro-enterprise sector. The paper presents some of the concerns associated with deriving policy based on these on-the-ground perceptions and addresses other aggregation and statistical issues associated with the Likert scale approach adopted.

1. Introduction

This paper identifies many important barriers to entry into self-employment, as perceived by adult residents of the Khayelitsha township in the city of Cape Town, South Africa. We believe this research project, and other analysis focused on the identification of such hindrances to small scale self-employment, will be of interest to a large number of researchers across multiple disciplines, to policy makers and to NGO administrators.

The relatively low level of employment in small scale entrepreneurial work is one of the many features that combine to produce enormous levels of unemployment in South Africa. Using a broad measure, unemployment estimates for Africans in South Africa as a whole have been near or above forty percent for over ten years, and were roughly forty-five percent in the past two years. The persistence of such levels of unemployment is dire, not just for the immediate loss in welfare for the many individuals and their dependents, but also for long term social cohesion within the society. Thus, we believe we this analysis will be beneficial to policy makers and NGO administrators attempting to help individuals overcome these perceived hindrances and move from unemployment to self-employment.

Those analyzing equity and justice concerns will also be intrigued by this work. Many individuals and households may be classified as poor today due to the exclusion from profitable opportunities in the labor market of first or second earners in the household. To be clear, we are positing this as a potential outcome not just from exclusion of the chance to work in the formal economy but also as a result of hindrances that exclude individuals from opening spaza shops, entering street trading, and engaging in other self-employment activities. For those who view development as increasing one's choice set (along the lines of Sen's capabilities (1985)), such exclusions represent a blow to development. This is seen as a direct attack on these individual's well-being, excluding the individual from full participation in society. Indeed, Winkelman and Winkelman (1998) find that being unemployed substantially lowers the individual well-being of males in Germany to a much greater degree than the loss of well-being directly resulting from the loss of income.

Those researching poverty traps may find our analysis a helpful guide for identifying some of the mechanisms by which such traps persist over time. It's conceivable that exclusion from opening small scale entrepreneurial activities may also lead to the inability to accumulate skills and/or capital necessary for improving their livelihoods in the future. Recent work lends empirical support to the existence of poverty traps in South Africa (Adato, Carter, and May, 2006).

Labor economists will also find this work of interest as these hindrances may help them better explain individual labor supply choices as well as apparent inefficiencies in the labor market functioning as a whole. Such small scale entrepreneurialism in the informal economy is often approximated as a free entry sector. A dual labor market model would predict those who are not allowed to enter into the preferred high wage sector, where wages may be high due to unions, legislation or other such mechanisms, to fall into the

free entry sector where wages/profits downwardly adjust until markets clear (see, for example, Ehrenberg and Smith (2003)). Given the enormously large unemployment rates over the past ten years, such a model is clearly an implausible description of the South African labor market. Identifying hindrances to self-employment in the informal economy may help labor supply models to better identify individual labor decisions and macro level equilibria outcomes as well as explain the apparent inefficiencies.

Finally, a broad spectrum of economists, sociologists and others may find this work interesting due to the fact that it serves as an empirical test of the importance of many new and old ideas within the development literature. Those working on issues related to microfinance, risk, job and entrepreneurial skills, crime, migration models and various aspects of social economics will all find these issues encompassed in this study. Often, economists and others write on one particular issue, such as access to capital, and seek to describe the theory and find empirical evidence of its importance in a particular setting. This work starts with the context of an important public policy issue in one particular area and lays out all of these ideas on an equal footing. To the extent that these perceptions correlate with true hindrances to self-employment, we have an empirical test to determine which theories are most relevant for addressing this particular issue. In other words, we can identify which theories should be foremost on the mind of researchers and policy makers interested in increasing access to such employment.

We find that concern over the expected profitability of self-employment, while important, is clearly not the dominant factor preventing entry into self employment. Crime is the single most dominant perceived hindrance. Other severe hindrances include the continual risk of business failure (explained in more detail below), a lack of access to start up capital, transport costs, uncertainty over profits before one starts the business and jealousy faced in the community if an individual is successful. This last hindrance, like the clear dominance of crime over all other concerns, was a major surprise to those co-authors based in the economics discipline. Both crime and jealousy are clearly worthy of immediate study, particularly to better understand how jealousy in the community manifests itself, its origins, its social function, and any ways in which it can be circumvented.

We are extremely careful in our methodological approach. While we start with a cardinality assumption in comparing hindrance scores, we also provide evidence to support these results using only ordinal comparisons assuming individuals share a common understanding of the scale and then again using only within person (ordinal) comparisons. We also include a discussion on the use of perceptions as a starting point for more de facto evidence of hindrances and other methodological concerns.

The outline of the rest of the paper is as follows: Section 2 provides a literature review describing the call for such work on barriers to entry into self-employment and a quick review of many of the theories we are testing. Sections 3 and 4 describe the data, and key methodological choices, respectively. Section 5 presents empirical results. Section 6 concludes with a discussion of potential next steps given these results.

2. Literature Review

Research identifying general constraints to informal self-employment has been surprisingly contained given its potential policy implications. A number of studies of the labor market, of job search techniques and of the informal economy have presented evidence suggestive of significant barriers. Cichello et al. (2005) find results that are suggestive of barriers in the informal economy in KwaZulu-Natal. Kingdon and Knight (2004) speculate on a series of reasonable barriers that have hindered the unemployed from entering into employment both in the Apartheid and post-Apartheid eras but do not provide direct examination of such barriers. Chen (2004) explicitly asks the question, "Do barriers to entry into the informal economy still exist in South Africa?" and calls for further research.

Work on this topic has been underway for some years in the form of sector specific industry studies. These have been conducted in Durban and other areas. Lund (1998) reviews the quantitative and qualitative survey work concerning street traders. Skinner (1999) looks at the specific problems faced by street traders as well as the administrative regulations and institutional structures that street traders face. Skinner and Valodia (2000) examine the role of informal workers in the clothing industry with particular interest in addressing how the formal and informal economies interact. Carr and Chen (2002) call for more such studies, but these are particularly useful when they include analysis of policies that may be applied by governments to address problems of the self employed.

A benefit of such industry specific studies is that policy makers are not fooled into thinking that the informal economy is all one similar entity. They recognize it is comprised of many specific activities, each with its own difficulties. The downside is that hindrances common to multiple sectors (and meso-level policies that may counter such hindrances) may not be given the full attention they deserve if policy makers think of this as a hindrance effecting just a small sub-sector activity. Additionally, concerns of many smaller activities may be left unnoticed if they don't warrant their own study.

Recently, more encompassing research projects addressing the constraints to self-employment across all types of informal economy activity, have been undertaken in South Africa. They are Chandra et al.'s (2002) study in Johanneburg, Skinner's (2005) study in Durban, and Cichello's (2005) study of Khayelitsha Mitchells Plain area in Cape Town.

Chandra et al (2002) using a survey of 500 informal sector operators in Johannesburg found constraints in order of importance to be: "(1) lack of credit, (2) low demand and variability of income streams, (3) high cost of infrastructure (public transport) and services (water, electricity, and telephone) and poor access to business support centers, (4) poor access to training, (5) lack of storage spaces/permanent stalls, (6) lack of transport facilities, and (7) inadequate business space." Chandra et al. discount perceptions of crime as a deterrent, a point brought out later in the paper.

4

Skinner (2005) reviews constraints faced by over 500 informal firms in the Durban metropolitan areas. This study offers an extensive set of questions directly assessing and ranking limitations faced by these small firms and looks at the role government may play to assist these firms as judged by those actually engaged in these activities. What the survey results reveal is that very few firms had ever obtained a loan or credit from a bank or any other institution. Very few firm owners had either been trained or had access to other forms of business support.

Cichello (2005) identifies a lack of capital as the primary barrier to self employment in the Khayelitsha/Mitchell's Plain (KMP) area of Cape Town. While concerns over expected profit are present, they are not the dominant hindrance. A lack of skills, concerns over future access to formal jobs and other "hidden" costs (such as crime) also play a role in limiting self employment but these are much more minor compared to the access to capital.

Cichello's study is as relevant for some methodological shifts as it is for identifying the constraints above. This report relied on a unique household survey, rather than a survey of informal firms. The 2000 Khayelitsha/Mitchell's Plain (KMP) survey contained relevant information from approximately 200 currently self-employed individuals and also from some previously self-employed individuals. A novel feature of the study is that the study used input from the potential self employed as well as actual and former self-employed. This was possible due to unique questions in the KMP survey that asked unemployed individuals why they did not attempt some form of self-employment.

In this study, Cichello acknowledges that his results are limited due to the limitation on respondents to answer only about the most dominant reason they do not enter self-employment. Thus, other hindrances may also be quite relevant but not listed as number one on many people's minds. Additionally, the work potentially suffers from interpretation of the exceptionally common response ("I have no money" was the response of 78% of respondents) being categorized as a lack of capital. There is a concern that such a blanket response may reveal a common reply rather than the underlying situation for the individual at hand or it may encompass many other meanings besides a lack of capital. Given this result, Cichello calls for more research on whether capital constraints are tied to a lack of access to start up capital or to a lack of demand for borrowing due to ex-ante risk management strategies which may be common among the poor.[1]

These previously mentioned studies have given a series of potential hindrances that may be important to Khayelitsha residents. Additional work and discussions with those from other disciplines also unearthed other potential hindrances. Many are off-shoots of ideas that have a large body of literature behind them. As we are testing 17 potential hindrances, we will not include an extensive literature review of each of these below. Likewise, no attempt is made to effectively model these all within a labor supply model and test such models.

---

[1] He also suggests a better way to identify the series of hindrances that individuals may face, rather than the most dominant. This work is a direct outgrowth of those suggestions.

The goal here is to present an empirical work that takes a broad set of ideas from the existing literature and let the collective voice of Khayelitsha residents narrow down our list.

3. Data

We are analyzing data from the 2005 Khayelitsha Survey, Wave III (KS-III). The base year data come from the Khayelitsha Mitchells Plain Survey (KMP), conducted primarily in November and December of 2000. This survey used a two stage clustered sample approach.[2] In 2004, a follow up survey (KS-II) was conducted for respondents from the Khayelitsha area only. The KMP and KS-II surveys have proved valuable in their own right. With innovative questions on the labor market and health outcomes, activities, and perceptions, these surveys have been a rich source of data for a variety of studies.

However, this study is based primarily on information contained in the Khayelitsha Survey, Wave III, which was in the field from October 2005 until January 2006. As attempts were made to find those who attrited in Wave II (as long as they lived in a household where at least one adult had been found and interviewed in Wave II), we are able to gain additional observations that would otherwise have been lost.[3] Nonetheless, attrition remains a serious concern. The year 2000 sample consisted of 962 Khayelitsha residents. In 2005, 535 were successfully re-interviewed implying an attrition rate of nearly 44%. However, a substantial portion of the loss is due to individuals moving away or dying.

If we re-adjust our sights and focus on an underlying population who were Khayelitsha residents in both 2000 and 2005 (for convenience called 5 year residents), our attrition rates drop to approximately 28 percent.[4] Thus, to the extent that they differ, our analysis will not be reflective of hindrances to self-employment faced by new migrants to Khayelitsha. When conducting univariate analysis, the data are re-weighted to account for attrition under the assumption that attrition was missing at random (MAR) after conditioning on a host of 2000 covariates.[5] For multivariate regression analysis, we will rely on the MAR assumption conditional on all variables in the regression.

---

[2] Statistical work accounts for the two stage clustered sample design.

[3] This led to an additional 34 completed surveys from those who did not complete in 2005. As this work generally does not make use of the 2004 survey, this is a very helpful feature. Due to cost considerations and the low probability of success, no attempt was made to relocate individuals from households where there were no completed interviews in 2004.

[4] Details available on request. This calculation will be available in an upcoming paper describing attrition in the 2000 and 2005 two period panel and the 2000/2004/2005 three period panel. The analysis will be similar to Magruder and Nattrass's previous review of attrition in the 2000-2004 panel (CSSR Working Paper 123). The 2005 attrition analysis is co-authored by Cichello as well as Magruder and Nattrass.

[5] Covariates include gender, age, age squared, years of education, years of education squared, total household income, household size, and dummy variables for whether an individual is employed,

Similar to its predecessors, the KS-III survey includes novel questions with regards to labor market analysis. In particular, the questionnaire includes a new module specifically designed to address barriers to entry in self-employment. This paper will rely heavily on the series of questions asking individuals to identify the extent to which 17 potential issues are a hindrance to his/her entry into self-employment (in the activity s/he has defined to be the most likely activity s/he would enter). Answers are given on a 5 point Likert scale under the following categories: (1) not a problem; (2) small problem; (3) medium problem; (4) large problem; and (5) so large a problem that it prevents you from starting self-employment.

A full list of the questions is available in Appendix 1. Many of these questions were purposefully selected to denote a particular concept from economics. Others were found to be important in earlier analysis from economists and/or non-economists, or from informal discussions with researchers in other disciplines.

An initial set of questions was modified extensively by the survey team at University of Cape Town's Centre for Social Science Research. Working side by side with the field workers, who are all extremely familiar with Khayelitsha, the team was able to capture sometimes difficult technical concepts and put them into everyday language that all could understand and agree on. Additionally, a Xhosa translation was completed and common interpretations were agreed upon by field workers. Many hours were spent on the conceptual understanding of the questions, in order that the English questions, the Xhosa translation, and the fieldworkers interpretation of the technical concepts, were in line with the needs of the researchers.[6]

Also provided in the appendix is a shorthand description for each question. This will appear in graphs, tables and text. We also state the more technical explanation we were hoping to capture with the question. Undoubtedly, some researchers who study one or more of the concepts we were attempting to capture will be unhappy with the wording chosen. We do recognize that this is a potentially valid critique. Experimentation on future questionnaires may offer some improvement where or if it is found to be necessary.

---

unemployed, or lives in a shack (all covariates from year 2000 values). We use probit regressions in line with the previously cited joint work with Magruder and Nattrass to construct weights {Pr $(A=0|x,z)/Pr(A=0|x)\}^{-1}$ as suggested by Fitzgerald et al (1998). A equals 1 if an individual attrites in 2005 and 0 otherwise, x in the case of identifying mean hindrance values will be simply a constant, and z variables are covariates listed above. Our assumption for multivariate work implies this correction will reduce to 1.

[6] We point this out for two reasons. First, we feel this process was vital to the integrity and success of this work. Second, those seeking to replicate this approach should not underestimate the difficulty of parsing out particular elements within detailed economic concepts (for example, differentiating expected profits from the uncertainty over the expected profit before one enters a business and better understands the market or differentiating the risk associated with the variability of income streams from the risk of outright business failures and the risk associated with uncertainty over profit levels).

This paper deals nearly exclusively with the full sample of adults. Those who were employed were asked to imagine they were retrenched and consider a form of self-employment that they would most likely choose to enter. A sample limited to responses from the unemployed is also available. Selected results from this subgroup are be included in Appendix 2. Additionally, individuals were asked the same 17 questions about a second activity, this one randomly assigned. We assigned either 1) selling small goods such as sweets, cigarettes, fruits or veg, etc. in the streets of Khayelitsha; 2) selling small goods such as sweets, cigarettes or clothing on the streets in the CBD; 3) opening a spaza shop from your home; or 4) making and selling furniture (males) or making and selling clothing (females) under the assumption that the government would train them in that skill first. The purpose of random assignment was to avoid selection issues associated with individuals focusing on the activity they would most likely enter. The rationale for each occupation was partly determined by popular activities, but we also wanted to assess activities with potentially different start up costs and/or skill levels required.

We feel that analyzing these data on these subgroups will offer valuable information. Yet, in all subgroups, the sample sizes are considerably smaller than the first breakout presented here. Small sample sizes reduce the power of statistical tests, making it much more difficult to find evidence that population means/proportions differ based on sample outcomes. Thus, we prefer to give information from both the full sample and, in Appendix 3, from the randomly assigned subgroups.

4. Methodology

In this section, we describe our major methodological choices and technical challenges. We address the use of perceptions rather than de facto evidence. We discuss the challenges of aggregating data across individuals when the data represent information on an underlying latent index of interest. We discuss the statistical challenges associated with individual fixed effects, with potential selection bias (from various sources) and with multiple tests that require adjustments to provide appropriate Type I error. Throughout this paper the removal of hindrances to self-employment is presented as a desired outcome.[7]

---

[7] Our analysis would not change if we simply viewed this as an outcome of interest but the tone of some of our discussion and policy suggestions surely would. Some might question whether this implicit assertion is reasonable, particularly if they believe that most people entering self-employment will end up worse off than if they had never tried. They may be concerned that failed business attempts will leave many already poor individuals with considerable debt or excluded from their social support networks. While such concerns can be characterized as paternalistic, implicitly relying on the belief that individuals either can not accurately perceive their own potential profit outcomes or that they are prone to self-malevolent choices, this is not a valid logical or empirical argument against them. Indeed, the authors are wary of the potential for overly aggressive lending practices without proper support. Nonetheless, we stick to this assumption as we believe this is the better first approximation for two main reasons. First, we believe these individuals are more familiar with demand for such activities than we are. Second, past empirical work, discussed previously, suggests that more profitable self-employment opportunities are available and/or that something is preventing individuals from accessing them. Finally, our continual emphasis on dismantling hindrances

Perceptions

In this paper, we focus on perceived hindrances to self-employment. This is not de facto evidence that such constraints affect those currently engaged in these activities or those trying to enter into such activities. Nonetheless, we believe analysis of such perceptions is quite useful.

First, perceived hindrances are likely highly correlated with actual hindrances. In this case, identification of important hindrances is vital as it will help set policy makers on the proper path targeting the hindrances that have the greatest negative impact on entry into self-employment.

Such work is particularly valuable given the current state of knowledge on the Cape Town informal economy. The amount of de facto evidence on constraints in the informal economy is currently quite limited. Regional, sector specific studies provide vital information, but there are still many holes concerning particular informal activities and regions. Additionally, the narrow focus of some studies may cause us to miss other potential hindrances that are also at work. The authors agree that well designed program evaluation studies, moving beyond descriptive analysis of challenges faced by current or former self-employed, are needed. Such studies would provide more compelling evidence than perception based studies and would also help to quantify the impact particular policies have on unemployment. However, such studies can be quite costly, often require extensive coordination with policy makers before programs go into effect, and require some time after policy introduction before analysis can be completed. If perceptions are highly correlated to reality, this is a relatively quick and efficient way to help focus policy makers on problem areas until more compelling evidence is available. It also helps to identify what policies/programs should be instituted and evaluated.

Second, to the extent that the stated perceptions guide behavior, understanding perceptions is vital whether those perceptions are true or false. Thus, labor economists perplexed by their inability to predict entry into the informal economy with an acceptable degree of precision, may find an expanded model that incorporates these misconceptions to be a much more powerful predictive tool. Likewise, such economists confused by the labor market functioning, particularly by the lack of entry into the informal economy when profits in this type of work seem to have improved, may find that this improved understanding explains the stability of such outcomes. Additionally, if such false perceptions are guiding behavior, policy makers will want to eradicate these errors in perception. Elimination of all false perceptions would improve the efficiency of the labor market.

---

to self-employment, should be understood to be accomplished by increasing the accuracy of perceptions and changing the underlying reality, rather than by promoting false perceptions.

The authors are aware that stated perceptions may not guide behavior. This could be because people state something they consciously or subconsciously know to be false, or if advisors or other outside influences tend to sort them into self-employment. This is one more reason why the authors suggest follow up work to find more de facto evidence of the dominant hindrances.

In providing perceptions, the authors are happy to rely on the voices, if not the actions, of those in Khayelitsha to identify such major hindrances.

Aggregating Stated Hindrance Values

There are three major analytical challenges to aggregating across responses on the five point Likert scale in order to identify the dominant perceived hindrances to self-employment. We address the first two in the next two paragraphs. First, the answers given are subjective and different individuals may have different interpretations of what it means to be "a large hindrance to entering self-employment" (i.e. what a "4" means). Secondly, the observed Likert scale is not necessarily a cardinal scale. In other words, the difference between 1 (zero deterrent) and 2 (small or trivial effect) is not necessarily the same as the difference between 2 (small or trivial effect) and 3 (medium deterrent to entry), etc. We look to the literature on measurement of subjective happiness to guide our thinking as these issues are present there as well. Ferrerr-i-Carbonell and Fritjers (2004) provide an excellent overview of recent work in this area.

We define three main assumptions that we use in interpreting the answers on hindrances in a fashion that parallels the work of Ferrer-i-Carbonell and Fritjers. We first define SH_{ih} as the stated hindrance level (1-5) of hindrance h for person i. We recognize that this stated hindrance will relate to some underlying scale of deterrence. In our case, we can think of this as relating to the deterrent effect hindrance h is for individual i, denoted DE_{ih}. We use assumptions that range from relatively weak to relatively strong as follows:

A1 Stated hindrances are a positive monotonic transformation of the true underlying deterrent effect (i.e. to the reduction in the likelihood that a person enters self-employment), denoted by DE for deterrent effect. Thus, if $SH_{ij} > SH_{ik}$ then $DE_{ij} > DE_{ik}$.

A2 Stated hindrances are interpersonally ordinally comparable: if $SH_{ih} > SH_{jh}$ then $DE_{ih} > DE_{jh}$.

A3 Stated hindrances are interpersonally cardinally comparable: $(SH_{ih} - SH_{jh}) = \omega(DE_{ih} - DE_{jh})$ with ω being an unknown constant.

The third analytical issue in aggregation is that the function mapping deterrent effects to stated hindrances is not a one-to-one function. In short, not all "4s" are created equal. Even if there is a collective agreement on what range of values on the deterrent effect scale constitutes a "4" on the stated hindrance scale, we can have trouble relating relationships of aggregated stated hindrances to similar aggregations in the latent index. For example, our concern might be that the "4"s people stated when discussing crime as a

hindrance were all close to the lower cutoff point on the underlying deterrent effect while the "4s" people gave for risk of business failure were all close to the upper cutoff point. To eliminate this possibility, we will assume throughout this paper that the distribution of responses within a given stated hindrance value are uniformly distributed within cutoff points on the latent index.[8] Given that the stated hindrance is no longer tied to a specific value in the deterrent effect, we re-write assumption A3 as:

A3' Stated hindrances are interpersonally cardinally comparable: $(SH_{ih} - SH_{jh}) = \omega E[(DE_{ih} - DE_{jh}) \mid SH_{ih}, SH_{jh}]$ or $\omega(E[(DE_{ih} \mid SH_{ih}] - E[DE_{jh} \mid SH_{jh}])$ with ω being an unknown constant.

In our work, we will start with the restrictive cardinality assumption (A3'). This will allow us to use sample means to compare hindrances and determine which hindrances dominates the others, meaning that it causes at least as much reduction in the likelihood of entering into self-employment as the hindrance it dominates. In practice, the cardinality assumption will have the advantage of allowing us to quickly rank the hindrances by comparing just 17 sample means (or 17 confidence intervals). We will also be able to easily create an absolute measure to characterize the degree to which hindrances are of concern based on the level of each mean (independent of its rank).

However, the cardinality assumption may well be invalid. Stepping back to assumption A2, we can relax the assumption of cardinality and use only ordinal comparisons. One common way to do this is to pick the point where you think the probability of hindrances would be quite large or "kick in." Thus, it is common to see ordinal comparisons where one compares the percent of the population that chose a hindrance to be large or very large. This measure is convenient as it, like the sample mean analysis, only requires a comparison of 17 items. However, it is not a satisfying criteria for defining one hindrance as dominant over another as it does not take advantage of the available information at hand.

Instead we will use an idea paralleling that of stochastic dominance in the poverty and risk literature. We shall call hindrance A more dominant than hindrance B if at each point on the cumulative density functions up to response 4 (large hindrance), the cumulative density function is higher for hindrance B (i.e. there is a higher proportion of individuals claiming hindrance B is no problem, claiming hindrance B is either no problem or a small problem, etc.).[9] If this holds, then any aggregation procedure based on a strictly positive monotonic transformation of the stated hindrance values (giving each observation equal weight) will rank Hindrance A over Hindrance B. The sample mean, using $f(SH_{ih}) = SH_{ih}$ as the transformation function and assigning equal weight of

---

[8] Weaker assumptions are possible for particular aggregations of interest, particularly the average score used extensively in this paper. However, two normally distributed latent indices with a common mean but different variances can be used to easily show the vulnerability of these results to specific cutoff points if there aren't restrictions on the (within hindrance) distribution of latent index scores. Without this assumption, the authors believe these results would still provide circumstantial evidence of our results.

[9] Note, by stated hindrance "5", all cumulative density functions will equal 1. Therefore, this offers no useful information for our measures.

1/n to each observation is now seen as just one example among an infinite set of aggregation schemes that would produce the same outcome.[10]

Under Assumption A2 and our maintained assumption of within interval uniform density of DE, this also implies that similar aggregations hold for the underlying latent index, DE as well. Conversely, whenever an aggregation procedure using a positive transformation (strictly or not) of stated hindrances finds that Hindrance A dominates Hindrance B, we can say the aggregation would reach a similar dominance conclusion if it were using the underlying latent index DE.

While this seems rather strong evidence of dominance, it relies on the assumption that individuals share a common understanding of what it means to be a large hindrance (#4). We will also relax this assumption and provide evidence of dominance using only intrapersonal comparisons. The evidence presented here using this assumption is not nested within the framework of the previous rules. It is simply illustrative of the type of evidence one can present under the minimalist approach to assumptions. We present it only to test robustness of earlier results. In order to do this, we will focus on the percentage of individuals who ranked one hindrance above another. If 50 percent of people rank, hindrance A over hindrance B and just 5 percent rank B over A (and 45 percent rank them equal), this provides circumstantial support to our previous ideas that Hindrance A is the dominant hindrance. We do not offer assumptions under which this provides definitive proof of dominance, but it is often compelling if still circumstantial.

Statistical Concerns

Bonferroni Adjustments

When conducting multiple statistical tests, one needs to decide if it is appropriate to include a Bonferroni adjustment. The concept behind the adjustment is straight-forward. During our analysis, we will observe different sample means for the 17 different hindrances. Naturally we would like to group or rank them and we will be interested in testing whether these differentials are statistically significant. This will result in statistical tests of 136 pairwise comparisons ((17 X 16) / 2). Even if the true population mean is identical for all 17 hindrances, there is much more than 5 percent chance of rejecting at least 1 of the 136 pairwise comparisons if we use the standard test criteria for $\alpha = .05$. Thus, when conducting multiple tests, some correction is needed.

The simplest common correction is the Bonferroni correction. Under this approach, we simply get a Type I error of .05 for the joint test on all outcomes by setting a p-value

---

[10] Other measures, similar to the p-alpha poverty measures, might be considered to measure the severity of particular hindrances. Such measures would have difficulty relating to similar aggregation procedures on the underlying index without the cardinality assumption. An exception to that would be in the case where we have stochastic dominance as discussed above. Under our assumptions, similar to Foster and Shorrocks (1988), this would imply that the ranking of hindrances would be clear under all p-alpha measures.

threshold of .05/136 for each pairwise comparison. We prefer to use the Bonferroni-Holm approach for the comparison of means (Holm 1979). This approach is similar, but uses an iterative process to update the divisor each time an individual comparison can be shown to have a statistically significant differential in means (and thus reject the notion that all pairwise comparisons still under scrutiny share a common mean).

It is worth noting that if, apriori, a researcher was truly interested in a specific relationship- say, between the mean effect of lack of access to start-up capital and the mean effect of low expected profits- then that researcher should use the standard p-value of .05 without any adjustments. Thus, we will always report statistical significance with and without adjustment for multiple comparisons. However, our process clearly was an empirical work designed to let the data tell us how these hindrances rank in importance against each another. Thus, we will make the adjustments discussed above.

Selection Bias

There are multiple opportunities for our analysis to suffer from selection bias. These come from survey attrition, selectivity of question respondents, the current employment status of sample respondents, and the choice of self-employment activity. The first two items, including explanations of how our analysis corrected for attrition, were addressed in the data section.

For those primarily concerned with barriers to entry of the *current* unemployed and concerned about the inclusion of employed individuals, we include some selected results using the sample of unemployed only. These are found in Appendix 2 and discussed in the Results section. However, for the majority of our analysis, we will use perceptions of the employed and unemployed to identify important hindrances. Those who were employed, were asked to imagine that they had recently been retrenched when answering these questions. We believe that these individuals can provide valuable information and allow a greater degree of precision in our estimates.

There may be concern that allowing individuals to choose the self-employment activity that they then give information about will bias inferences. To counter this potential problem, we also look at results for specific activities which were randomly assigned to individuals. However, we also believe, given that there are an extremely large number of potential activities, determining the extent to which a particular hindrance affects an individual is best thought of in terms of the activity they deem most likely to attempt.

Along these lines, there are many activities that individuals may not be aware of that might offer substantial self-employment income. The hindrances listed here may not be the most important hindrance to entering these activities. Indeed, by the very presupposition of the problem, the primary hindrance would be a lack of awareness. Thus, this analysis should not preclude policy geared towards increasing skills or information for currently uncommon activities. However, our work is focused on potential improved outcomes for people under their current conditions and knowledge.

Addressing hindrances currently at the forefront of people's attention is strongly advocated.

5. Results

Which self-employment activities do individuals imagine doing?

Individuals who were not currently self-employed were asked to identify which self-employment activity they would be most likely to enter. The proportions choosing each activity are shown by gender in Table 1.[11]

Most activities selected are retail activities. Overall, running a spaza shop from home was the most common response with roughly a quarter of respondents from each gender selecting this activity. Selling goods on the streets of Khayelitsha was also a very popular response. Many of the activities we listed under production and services also include heavy retail components and some might argue they belong in this classification as well. Some production activities were also prevalent. For example, for women, making clothes for sale was an even more popular choice than opening a spaza. Various services, including offering cell phone services, were also mentioned.

With this activity in mind, individuals were next asked to identify how much each possible hindrance deterred him or her from entering this type of self-employment.

What are the major deterrents to self-employment?

Crime is the single most dominant perceived hindrance to entering self-employment. This will be shown convincingly using a variety of assumptions and rules to determine when one hindrance can be said to be more severe than another. However, this should not be the only take-away from our results. Other hindrances, such as the risk of business failure, a lack of access to startup capital, transport costs, and jealousy within the community if one is successful, are also shown to be important deterrents to self-employment in Khayelitsha.

---

[11] 62 individuals could not imagine doing any self-employment activity and were thus excluded from the following analysis. Of these, a number appear legitimately uninterested in any type of self-employment, making other potential hindrances moot. For example, of the ten people who said they were too old to work, eight were over 60 years old. On the opposite extreme, six people said they were afraid of being robbed, four were worried about the risk, one did not have access to capital and one did not have the skills. These people should have been included but, given the length of this survey module (at the end of an hour long survey), we agreed that respondents should not be forced to answer these questions if they could not imagine any activity. In between, were the seventeen people who did not have the patience for/did not like/did not want such work. While our results may suffer some slight selection bias from the absence of these individuals, we take comfort in the fact that the named constraints match well with the prominent constraints found in our analysis.

We begin by offering two possible rules that we might use to define *relative rankings* in determining the biggest hindrance to self-employment. Both rules are fairly intuitive and are likely starting points most analysts would take as they grapple with how to best aggregate the information from the Likert scale responses across all individuals.

Rule 1: Hindrance A is said to dominate hindrance B if the mean response for hindrance A is greater than the mean response for hindrance B.

Rule 2: Hindrance A is said to dominate hindrance B if the proportion of individuals stating that hindrance A is a large or very large deterrent is greater than the proportion of individuals that state the same for hindrance B.

Rule 1 implies an aggregation process that fits well with the strong assumption that stated hindrances are interpersonally comparable and cardinal in nature (Assumption A3). As we aggregate across individuals the difference between a 1 and a 2 has the same impact on our final measure as the difference between 2 and 3, etc. On the other hand, Rule 2 seems very odd for these assumptions. In aggregating across individuals, this measure assigns a zero value to all individuals who answered 1 through 3 on the Likert scale and some constant c to those who answer with values 4 or 5, although it does seem to also imply that the measures are interpersonally comparable.
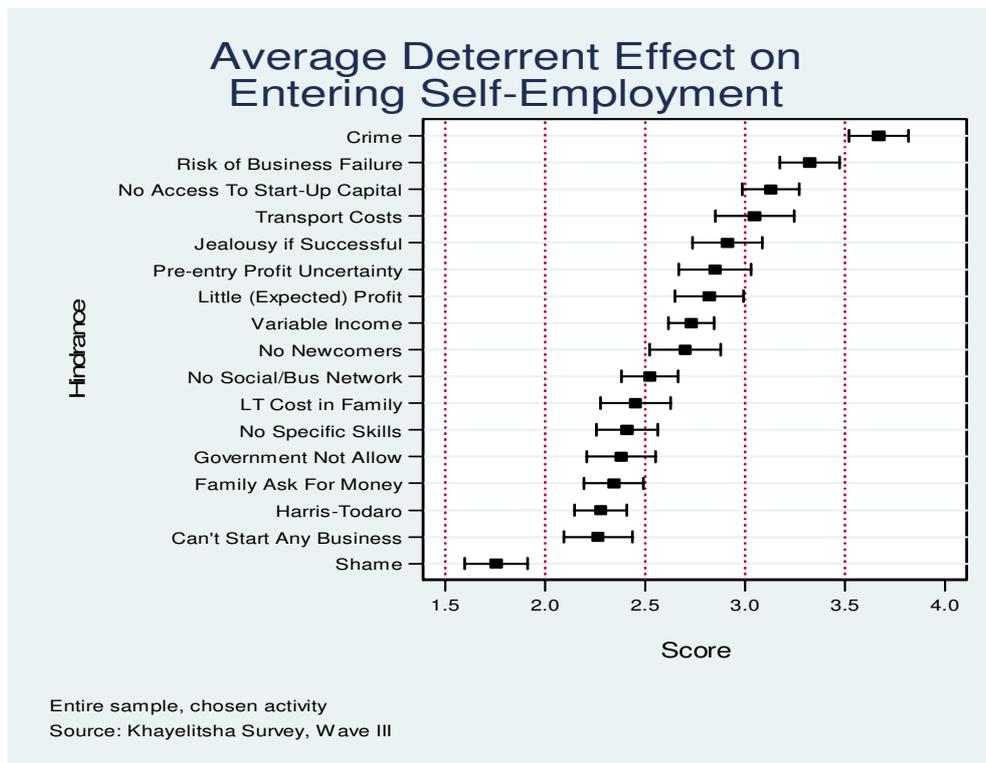
Figure 1 shows the sample mean and a 95 percent confidence interval for the population mean for each of the 17 hindrances using the entire sample and response concerning

respondents' chosen activity. A rough eyeball test suggests that, in this population, crime dominates all other hindrances. It is also immediately clear that shame is not a deterrent of concern for these activities as it is dominated by all other hindrances. In many other cases, we are unable to tell if a particular hindrance dominates another in the population of Khayelitsha adult 5 year residents.

There are a number of reasons to verify conclusions off such rough eyeball tests. For one thing, the positive covariance across most hindrances (not shown) can cause more statistically significant differences than if these were independent outcomes.[12] On the other hand, the fact that we are conducting multiple tests works against finding these differences as statistically significant. Table 2 allows the reader to assess whether these differences in population mean estimates are statistically significant at the 5 percent level under both a standard pairwise comparison and a comparison adjusted for the fact that we are conducting multiple pairwise comparisons using the Bonferroni-Holm method.

The results after technical adjustment are generally but not universally consistent with a rough eyeball test of looking for non-overlapping confidence intervals. For example, the dominance of crime holds up for all cases except *risk of business failure*, which fails only after we use a Bonferroni-Holm adjustment. Table 2 also reveals that, despite our compact sample size, we are able to gain very meaningful information with this approach. 85 of the 136 pairwise comparisons (62.5%) reveal statistically significant differences in the underlying population, even after the Bonferroni-Holm adjustment.

Proportion Finding Hindrance a Large Deterrent to Self-Employment

Entire sample, Chosen activity
Source: Khayelitsha Survey, Wave III

---
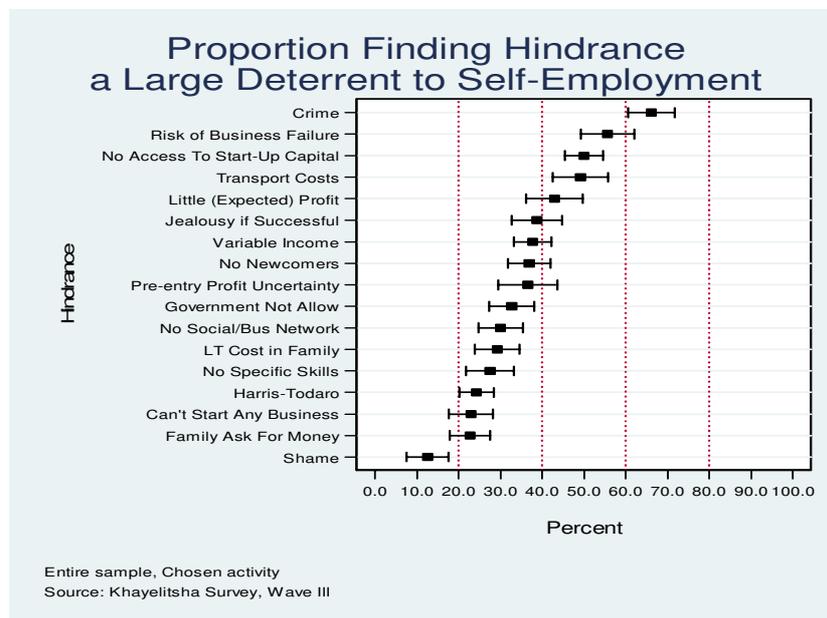
[12] If $\mu_{diff} = \mu_1 - \mu_2$, then $Var(\hat{\mu}_{diff}) = Var(\hat{\mu}_1) + Var(\hat{\mu}_2) - 2*Cov(\hat{\mu}_1, \hat{\mu}_2)$. Since most covariance terms are positive across these stated hindrance values, the standard errors of our estimated difference in mean stated hindrance value (without a Bonferonni correction) would generally be smaller than they would be if Figure 1 were comparing independent means with similar confidence intervals.

Under Rule 2, using the same sample and activities, crime can again be shown to dominate all other hindrances. Figure 2 shows the proportions for each hindrance. This figure also provides an easy way to eyeball whether many of the hindrances lead to statistically different proportion of individuals finding the hindrances to be large deterrents to entry.

While relative rankings are important, we would also like to have some absolute criteria for determining what constitutes a "significant" hindrance. In Table 3, we classify hindrances as significant, severe, or critical if they meet specific thresholds. In this table, hindrances may fall into more than one classification if the 95 percent confidence interval falls across multiple designations. The designations are shown in Table 3. Bold lettering denotes the position of the sample mean.

Crime stands as the lone hindrance deemed critical. Severe hindrances include Risk of Business Failure, No Access to Start-up Capital, Transport Costs, Jealousy if Successful, and Pre-entry Profit Uncertainty. For the multivariate work that follows, we will limit analysis to these critical or severe hindrances.

The large sample size has been a tremendous benefit in designating statistically significant differences across items. However, if one is primarily concerned with helping today's unemployed enter into entrepreneurial activities, s/he may be concerned with the use of information from those who are currently employed or out of the labor force. Appendix 2 shows these figures for the sample of unemployed only. Confidence intervals are considerably larger. Results are not appreciably different though there is some movement of relative positions and a bunching of the top four hindrances. In particular, there is some evidence that this sub-sample has a higher mean response for lack of access to capital and transport costs. The biggest change is that the null hypothesis that the mean hindrance value for crime is equal to that of risk of business failure (or dominates a few other hindrances is no longer statistically significant even before adjusting for multiple comparisons. That said, the sample mean is still 0.23 higher than the nearest hindrance and the sample proportion remains 6 percentage points above the nearest hindrance.

Appendix 3 includes similar graphs of average hindrance levels for the randomly assigned activities. The tenuous nature of self-employed activities is shown to be potentially on par with crime as a deterrent to self-employment in street selling activities. Other items bounce ranks across activities. For four of the five activities randomly assigned, Crime, Risk of Business Failure, Lack of Access to Capital and Transport Costs rank as the top four hindrances, though the order may vary on a case by case basis. The importance of jealousy seems to fall to the middle of the pack in these settings.

Returning to our investigation of the relative position of hindrances, we may find the two previous aggregation schemes unsatisfactory. The first assigns values that imply the difference in the stated hindrance levels correspond to proportionally similar differences in the underlying entity while the second assigns a zero value to small or medium hindrances and the same value to large and very large impacts. The truth is we simply

aren't sure how to weight each response because we don't have a solid understanding of the mapping of the underlying entity to the stated hindrances. Thus, we can fall back to a new rule:

Rule 3: Hindrance A is said to dominate Hindrance B if, for a randomly selected individual, the $Pr(SH_A \leq x) \geq Pr(SH_B \leq x)$, for x = 1, 2, 3, 4.

This rule is essentially a first degree stochastic dominance criteria, but for the first four points of the distribution. (Note: The $Pr(SH_i \leq 5) = 1$ for all hindrances.) While this criteria may leave more pairwise relationships without a clear dominant hindrance as compared to Rule 1 or 2, it is substantially more robust. Satisfying Rule 3 implies satisfying Rule 1, Rule 2 and any other aggregation scheme that aggregates based on a positive monotonic transformation of stated hindrance values.

Figure 3 shows an example where crime dominates concerns over low (expected) profits.
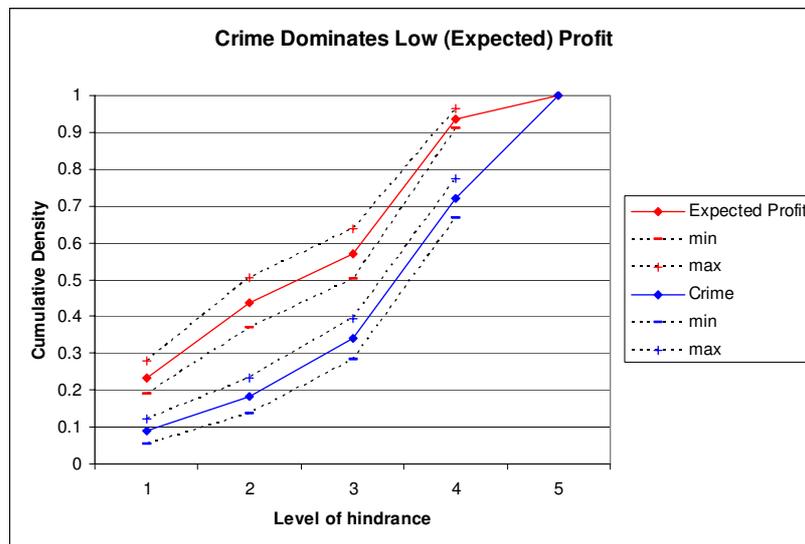
Table 4 shows a matrix of results testing for dominance under the Rule 3 criteria (essentially first order stochastic dominance). Again, there are 136 pairwise comparisons. A "1" in the table denotes dominance within the sample, i.e. the cumulative relative frequency within the sample is lower for each of the first four values. A "2" denotes that this difference is statistically significant at the 95 percent level for each of the first four values. In other words, dominance has been demonstrated for the underlying population.

The dominance of crime, even under this stringent criteria, is statistically significant for all hindrances except the risk of business failure. The lack of statistical significance is driven by the fact that the proportion saying that crime was "not a problem" was lower but not statistically significantly different than the proportion saying risk of business failure was "not a problem." For responses 2 - 4, the lower cumulative density estimate for crime was statistically significant.

Other severe hindrances also show signs of their dominating other hindrances under this approach. Each hindrance can be compared on a case by case basis, but aggregating down the columns gives a quick first approximation of how detrimental hindrances are compared to other hindrances under this more robust approach. Risk of business failure (25), a lack of access to startup capital (22), transport costs (19), and jealousy if successful (17) are again shown to severe hindrances. Under this approach to relative rankings, pre-entry profit uncertainty does not dominate many other hindrances.[13]

This approach does have a significant assumption built in. The assumption is that the answers are interpersonally comparable, meaning that one person's mapping of the real effect on entering self-employment to the stated hindrance values (such as "4: this is a large hindrance) exactly matches the mapping given by all other individuals. the same way as if any other individual says "4."

We now eliminate this assumption and seek to assign dominance using only within person comparisons. In this way we define a new rule for assigning dominance:

Rule 4: Hindrance A is said to dominate hindrance B if the proportion of individuals who rank hindrance A at least one point higher than hindrance B is 25 percentage points higher than the proportion of individuals that rank hindrance B at least one point higher than hindrance A.

Table 5 shows within person comparisons across hindrances. The upper left cell implies that 23.1 percent of the sample gave a stated hindrance value for Low (Expected) Profit was at least one point higher than the same persons stated hindrance value for Pre-entry Uncertainty over Profit. The cell below shows that the stated hindrance for Pre-entry Uncertainty over Profit was at least one percentage point higher than the stated hindrance for Low (expected) Profit. (The rest had equal values.) This is clearly a muddied case where we would not view this as strong evidence that one dominates the other either way. In contrast, 53 percent of individuals gave crime a higher hindrance value than low (expected profit) while just 14 percent did the opposite. This differential is such that, using Rule 4 as our criteria, we would say that crime dominates low expected profit. This cell is therefore shaded in Table 5. In fact, according to Rule 4 criteria, crime again dominates all other hindrances.

There is something intuitively appealing and rather convincing about this approach. If some people continually overstate the difficulty of problems they face and others continually understate these problems, this allows them to still contribute in convincing fashion by showing proper rankings. However, in many ways this rule is terribly unreliable. For example, it is easy to show that it is possible for hindrance A to dominate hindrance B under Rule 4, yet be dominated by hindrance B under Rules 1 and 2. Even

---

[13] This hindrance has fewer observations for than others due to the introduction of this question into the survey after some surveys had been sent to the field. While the increased sample size will result in larger confidence intervals, this is not the primary reason for a lack of dominance. Instead it is driven by the smaller percentage of individuals labeling this a large or very large hindrance, as was evident in its rather low relative position in Table 3, proportion column.

more disturbing, the relationship to the underlying entity (DE) is completely lost. The 50 percent who rank A over B may be doing so based on a 1 unit change in the underlying entity, while the 20 percent who rank B over A may be doing so based on a 1000 unit change in the underlying entity.

With this caveat in mind, we present this as highly circumstantial evidence that crime again dominates all other hindrances. We also see that Risk of Business Failure, Transport costs and no access to startup capital are again asserting dominance over a number of other hindrances. Jealousy if successful dominates just four other hindrances but no other hindrance dominates anything but shame. Additionally, this outcome would jump to seven other hindrances dominated if the differential threshold were dropped to 20 percentage points. Thus, there is still some evidence of its importance under this approach.

Therefore, under a variety of rules, we can determine that crime is the most dominant hindrance faced by Khayelitsha residents as they consider self-employment. The risk of business failure, a lack of access to start-up capital, transport costs, and jealousy if successful are also consistently shown to dominate most other hindrances. A number of other hindrances also show signs of being significant hindrances in an absolute sense.

6. Conclusion

Crime is perceived to be the most important hindrance to self-employment in Khayelitsha. How can policy makers respond? First, admittedly, there needs to be more analysis to determine where the crime is taking place, and what forms of crime are affecting different types of people and business operations. If self-employment makes one a target while selling one's goods, this may lead to different action than if the homes of the self-employed are being targeted for night-time robberies. The first might suggest creating a few trading zones, where traders can work together (with police) to discourage criminal activity. Urban commercial zones with enhanced security or stiffer penalties for criminal activity within the zone might be considered. The second issue might suggest a need for off-site storage of business goods and/or cash (possibly within the aforementioned commercial zones). Identifying similar actions already taken in Durban and elsewhere would be helpful to Cape Town policy makers.

Crime is not the only hindrance preventing Africans in the Cape Town area from entering self-employment. Policy makers, NGO administrators and academics should actively address other severe hindrances as well. These include the risk of business failure, a lack of access to start-up capital, the high cost of transport, and jealousy within the community if one is successful.

The risk of impending business failure weighing on the minds of the potential self-employed may be caused by a variety of reasons. The intent of the question was to identify if the inability to borrow (after the business has begun and on a potentially rushed basis) causes businesses to fail. In this case, microfinance programs would be

well advised to offer more complete assistance, rather just offering access to start-up capital and leaving the client to fend for themselves thereafter. However, the question may well be picking up a variety of issues that emerge on a short term basis. Short term shocks due to theft of stock, a spell of bad health, required attendance at the funeral of another, or simply a bad month of selling, etc. can all lead to immediate failure. Some of these may be addressed via insurance schemes, further encouraging programs to do more than simply offering start-up funds. Future survey work is needed to identify which of these is most prevalent. In the near future, the authors expect to provide more information on access to immediate capital found in the survey (what type of individuals can get access to low levels of cash in a matter of days, where do they borrow from, etc.).

While the previous hindrances might suggest that it is the demand for start up capital that is failing, the prevalence of people finding a lack of access to start-up capital to be a problem shows that supply of capital is also a major issue. Current government and NGO attempts to offer microfinance appear to be either completely ineffectual at serving this level of micro-entrepreneur or they are simply much too small in scope to have a major impact. In the near future, the authors expect to provide more information on access to start-up capital found in the survey (how long it takes to get start up capital, where people borrows from, etc.). Future work identifying how such programs can better market themselves and better serve these potential clients are clearly needed.

High transport costs are also a severe deterrent. Such costs may be amplified to some degree in Khayelitsha due to its lengthy distance from City Centre. In terms of policy, this is an area where the government could easily provide funds to lower transport costs. However, such policies must take into account expected responses by taxi associations and other. The history of violence resulting from previous attempts to lower transport costs is well known.

Finally, jealousy within the community if one has a successful business is also a major hindrance to starting a business. More qualitative work is needed to identify how this jealousy manifests itself.

Future drafts of this work will offer more detailed suggestions to policy makers. It is hoped that more novel interventions/policies/programs will be attempted, bearing in mind these five key hindrances. Such implementation could then be followed by program evaluation studies that offer de facto evidence of increased self-employment in an environment where such hindrances are removed or creatively countered or avoided.

As a final comment, the authors thoroughly endorse continued efforts to encourage "good jobs" via growth in labor demand within the formal sector. However, after more than ten years of such efforts, we also believe that identifying constraints to self-employment is a major priority. This offers another avenue to lower unemployment and to have many individuals gaining some positive earnings in the near term.

References

Adato, M. Carter, M.R. and May, J. (2006). Exploring poverty traps and social exclusion in South Africa, using qualitative and quantitative data. *Journal of Development Studies*. 42(2).

Ashforth, A. (2005). *Witchcraft, Violence and Democracy in South Africa*, Chicago: Chicago University Press.

Carr, A. and Chen, M (2002). Globalisation and the Informal Economy: How Global Trade and Investment Impact on the Working Poor. International Labor Office: Geneva

Chandra, V., Nganou, J., and Noel, C. (2002). Constraints to growth in Johannesburg's black informal sector: Evidence from the 1999 informal sector survey. Discussion Paper No. 17. World Bank Southern Africa Department, Washington, DC.

Chen, M. (2004). "Informality at Work: Reconceptualising the Employment Challenge." 50th Anniversary Conference Reviewing the First Decade of Development and Democracy in South Africa. University of KwaZulu-Natal. Durban, South Africa. October.

Cichello, P. (2005). "Hindrances to Self Employment: Evidence from the 2000 Khayelitsha Mitchell's Plain Survey" CSSR Working Paper.

Cichello, P., Fields, G.S., and Leibbrandt, M. (2005). "Earnings and Employment Dynamics for Africans in Post-apartheid South Africa: A Panel Study of KwaZulu-Natal." *Journal of African Economies* 14, no. 2: 143-90.

Devey, R., C. Skinner, and Valodia, I. (2004). "Definitions, Data and the Informal Economy in South Africa: A Critical Analysis." 50th Anniversary Conference Reviewing the First Decade of Development and Democracy in South Africa. University of KwaZulu-Natal. Durban, South Africa. October.

Ehrenberg, R. G. and Smith, R. S. (2000). Modern Labor Economics: Theory and Public Policy, 7th Edition. Addison-Wesley. Reading, Massachusetts.

Fitzgerald, J., Gottschalk, P. and Moffit R. (1998). "An Analysis of Sample Attrition in Panel Data." *Journal of Human Resources*. 33(2): 251-299.

Kingdon, G.G., and Knight, J.B. (2004). "Unemployment in South Africa: The nature of the beast." *World Development*. 32(3). 391-408.

Lund F. (1998). "Women Street Traders in Urban South Africa: A Synthesis of Selected Research Findings." CSDS Research Report No 15. Durban: University of Natal.

Magruder, J. and Nattrass, N. (2005). "Attrition in the Khayelitsha Panel Study (2000-2004)." CSSR Working Paper No. 123. Centre for Social Science Research, University of Cape Town.

Skinner, C. (2005). "Constraints to Growth and Employment in Durban: Evidence from the Informal Economy." SoDS Research Report 65. University of KwaZulu-Natal.

Skinner, C. (1999). "Local Government in Transition - A Gendered Analysis of Trends in Urban Policy and Practice Regarding Street Trading in Five South African Cities." CSDS Research Report No 18. Durban: University of Natal.

Skinner, C. and Valodia, I. (2002). "Labor Market Policy, Flexibility, and the Failure of Labor Relations: The Case of the KwaZulu-Natal Clothing Industry." Transformation 50.

Sen, A. (1985). Commodities and Capabilities. North Holland: Amsterdam.

Winkelman, L. and Winkelman, R. (1998). "Why Are the Unemployed so Unhappy? Evidence from Panel Data." *Economica.* 65: 1-15.

Appendix 1: Questionnaire
Interviewer read out: Now think about the kind of self-employment you have just told me about

For the following statements, please respond by saying how big of a problem this would be to you if you were deciding whether to try to do this kind of self-employment. If you do not agree with the statement, then say that you do not consider it a problem. If you do agree with the statement, decide how much of a problem this is to you using the following categories (not a problem, small problem, medium problem, large problem, or so large a problem that it prevents you from starting self-employment)?

		Not a problem (or strongly disagree)	Small Problem	Medium Problem	Large Problem	Very Large Problem-Prohibits self-emp	Don't know
# 1	I will make little or no money in this type of business.	1	2	3	4	5	99
# 2	I cannot be sure that I will make money until I actually start this business	1	2	3	4	5	99
Interviewer read out: Please remind the respondent we do not want to know if the statement is true or false, but whether it prevents them from starting self-employment.							
# 3	The government does not allow people like me to do this type of activity or charges permit fees to enter this activity.	1	2	3	4	5	99
# 4	Those who are currently doing this activity will not allow newcomers like me to join in.	1	2	3	4	5	99
# 5	I do not have the skills or ability to do this particular type of work.	1	2	3	4	5	99
# 6	I do not know how to start a business.	1	2	3	4	5	99
# 7	I will be embarrassed if I do this type of work.	1	2	3	4	5	99
# 8	I am afraid I will be robbed if I do this kind of work.	1	2	3	4	5	99
# 9	If I make too much money at this type of business people in the community will be jealous.	1	2	3	4	5	99
# 10	I cannot get anyone to loan me the money I need to buy stocks or other materials I need to start the business.	1	2	3	4	5	99
# 11	Sometimes I will not be able to eat or pay accounts because the money from this type of business will change from month to month.	1	2	3	4	5	99
# 12	One unlucky month when business is not going well could suddenly cause the whole business to fail.	1	2	3	4	5	99
# 13	I will have less time to look for a better job.	1	2	3	4	5	99
# 14	I do not have friends and relatives who can help me succeed in this business.	1	2	3	4	5	99
# 15	The transportation costs to get myself or my products where they need to be are too expensive.	1	2	3	4	5	99
# 16	Other family members will ask me for money for their needs.	1	2	3	4	5	99
# 17	If the business were to fail, I would no longer be able to receive the same level of material support from the household that I currently enjoy.	1	2	3	4	5	99

Hind	Short hand on graphs	Wording in survey
# 1	Little (Expected) Profit	I will make little or no money in this type of business.
# 2	Pre-Entry Profit Uncertainty	I cannot be sure that I will make money until I actually start this business
# 3	Government Not Allow	The government does not allow people like me to do this type of activity or charges permit fees to enter this activity.
# 4	No Newcomers	Those who are currently doing this activity will not allow newcomers like me to join in.
# 5	No Specific Skills	I do not have the skills or ability to do this particular type of work.
# 6	Can't Start Any Business	I do not know how to start a business.
# 7	Shame	I will be embarrassed if I do this type of work.
# 8	Crime	I am afraid I will be robbed if I do this kind of work.
# 9	Jealousy if Successful	If I make too much money at this type of business people in the community will be jealous.
# 10	No Access to Start-Up Capital	I cannot get anyone to loan me the money I need to buy stocks or other materials I need to start the business.
# 11	Variable Income	Sometimes I will not be able to eat or pay accounts because the money from this type of business will change from month to month.
# 12	Risk of Business Failure	One unlucky month when business is not going well could suddenly cause the whole business to fail.
# 13	Harris-Todaro	I will have less time to look for a better job.
# 14	No Social/Bus. Network	I do not have friends and relatives who can help me succeed in this business.
# 15	Transport Costs	The transportation costs to get myself or my products where they need to be are too expensive.
# 16	Family Ask for Money	Other family members will ask me for money for their needs.
# 17	LT Cost in Family	If the business were to fail, I would no longer be able to receive the same level of material support from the household that I currently enjoy.

Appendix A.2: Unemployed Sub-sample

Average Deterrent Effect on Entering Self-Employment

Unemployed, chosen activity
Source: Khayelitsha Survey, Wave III

Proportion Finding Hindrance a Large Deterrent to Self-Employment

Entire sample, Chosen activity
Source: Khayelitsha Survey, Wave III
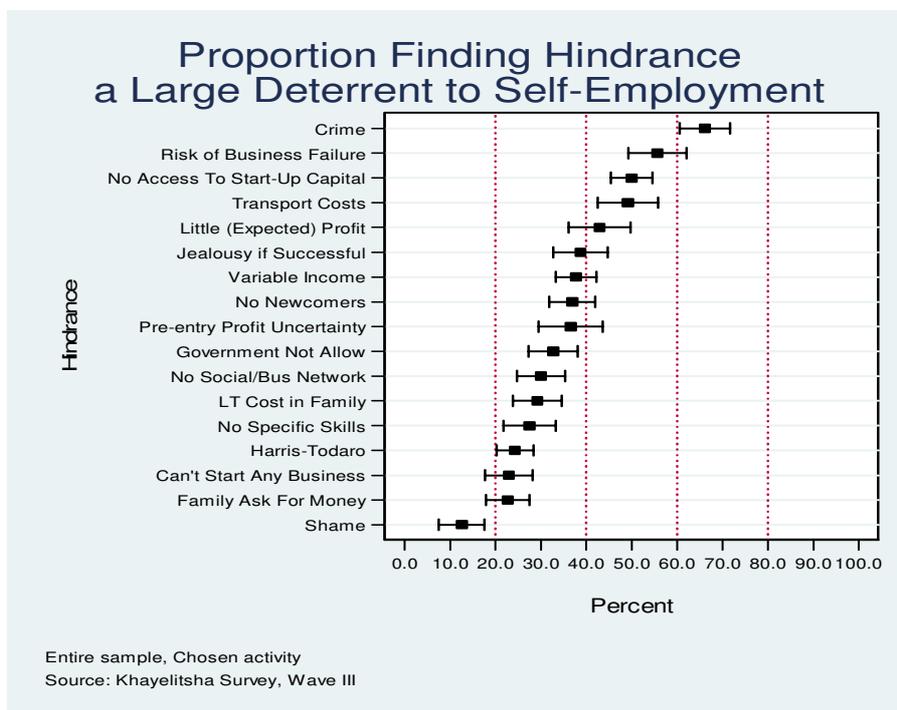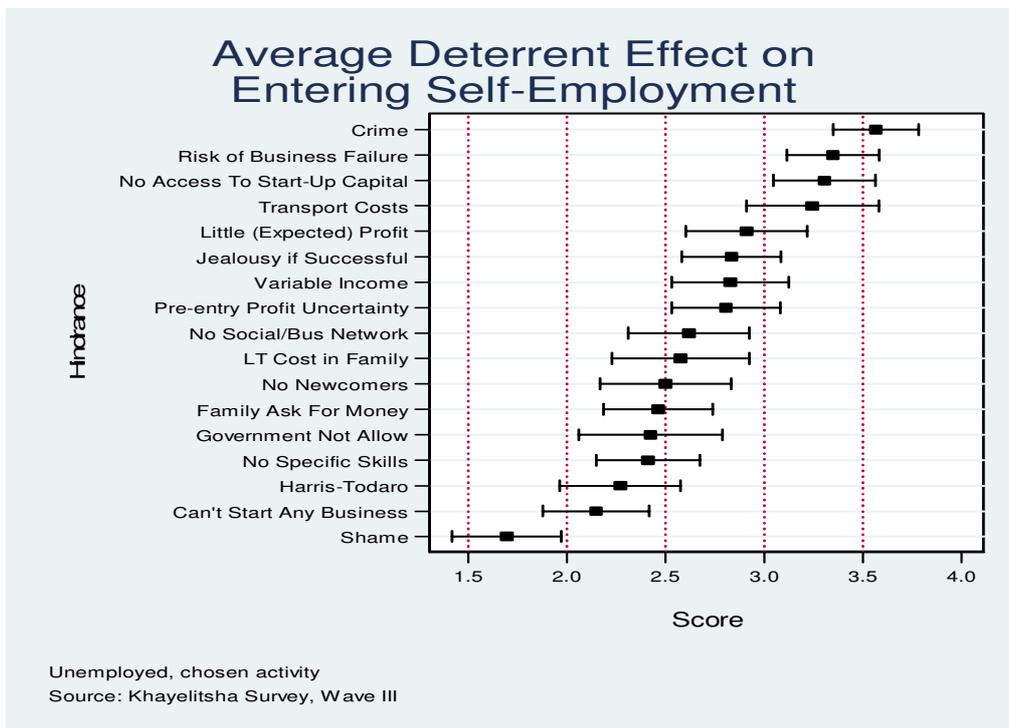
Appendix A.3: Randomly Assigned Activity Sub-samples

Average Deterrent Effect on Selling Goods in Streets (Khay.)
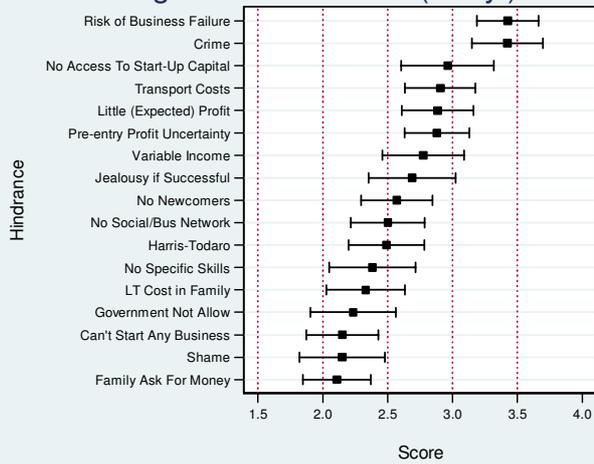
Hindrance	
Risk of Business Failure	
Crime	
No Access To Start-Up Capital	
Transport Costs	
Little (Expected) Profit	
Pre-entry Profit Uncertainty	
Variable Income	
Jealousy if Successful	
No Newcomers	
No Social/Bus Network	
Harris-Todaro	
No Specific Skills	
LT Cost in Family	
Government Not Allow	
Can't Start Any Business	
Shame	
Family Ask For Money	

Score

Randomly Selected Individuals, Assigned activity
Source: Khayelitsha Survey, Wave III

Average Deterrent Effect on Opening a Spaza

Hindrance	
Crime	
Risk of Business Failure	
Transport Costs	
No Access To Start-Up Capital	
Little (Expected) Profit	
Pre-entry Profit Uncertainty	
Jealousy if Successful	
No Newcomers	
No Social/Bus Network	
Can't Start Any Business	
Variable Income	
LT Cost in Family	
No Specific Skills	
Family Ask For Money	
Harris-Todaro	
Government Not Allow	
Shame	

Score

Randomly Selected Individuals, Assigned activity
Source: Khayelitsha Survey, Wave III

Average Deterrent Effect on Selling Goods in Streets (CBD)

Hindrance	
Crime	
Risk of Business Failure	
Pre-entry Profit Uncertainty	
Transport Costs	
Little (Expected) Profit	
Variable Income	
No Newcomers	
Jealousy if Successful	
No Access To Start-Up Capital	
LT Cost in Family	
Family Ask For Money	
No Social/Bus Network	
Government Not Allow	
Harris-Todaro	
No Specific Skills	
Can't Start Any Business	
Shame	

Score

Randomly Selected Individuals, Assigned activity
Source: Khayelitsha Survey, Wave III

Average Deterrent Effect on Making Clothes

Hindrance	
Crime	
Risk of Business Failure	
Transport Costs	
No Access To Start-Up Capital	
Pre-entry Profit Uncertainty	
Jealousy if Successful	
Little (Expected) Profit	
No Specific Skills	
Variable Income	
Can't Start Any Business	
LT Cost in Family	
No Social/Bus Network	
Harris-Todaro	
Family Ask For Money	
No Newcomers	
Government Not Allow	
Shame	

Score
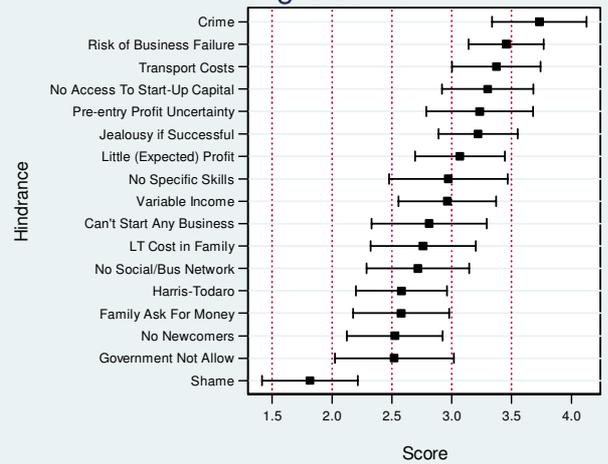
Randomly Selected Females, Assigned activity
Source: Khayelitsha Survey, Wave III

27

Average Deterrent Effect on Making Furniture

Hindrance

Crime	
Transport Costs	
No Access To Start-Up Capital	
Risk of Business Failure	
No Specific Skills	
Jealousy if Successful	
Pre-entry Profit Uncertainty	
Can't Start Any Business	
Little (Expected) Profit	
Variable Income	
No Newcomers	
No Social/Bus Network	
LT Cost in Family	
Harris-Todaro	
Family Ask For Money	
Government Not Allow	
Shame	

Score
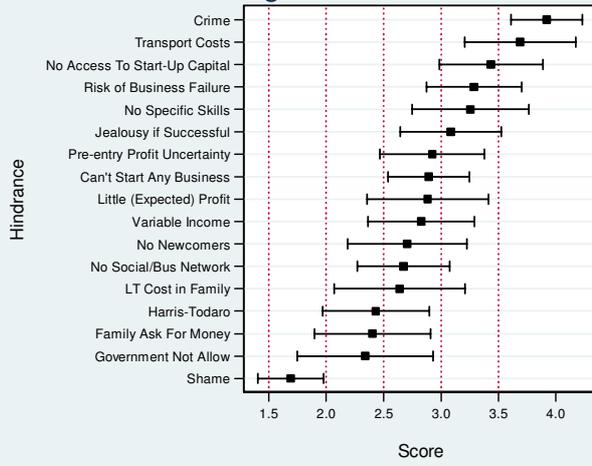
Randomly Selected Males, Assigned activity
Source: Khayelitsha Survey, Wave III

Appendix 4: Histograms
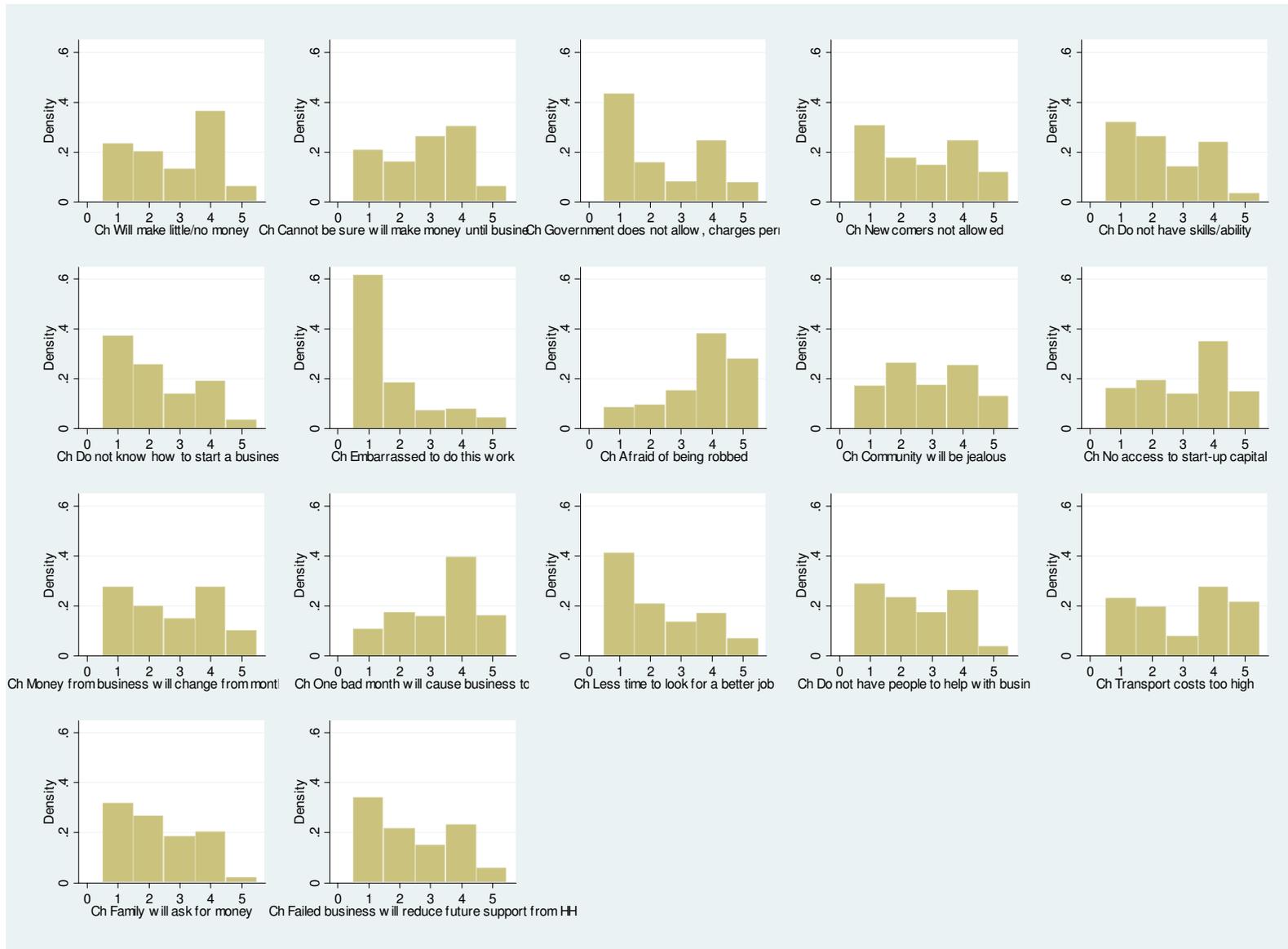
Table 1: Percent of individuals selecting each activity		Female	Male	Total
	Retail	53.4	55.2	54.1
Sell goods on the side of the street in Khayelitsha (like sweets and cigarettes, fruit or vegetables)		17.5	12.8	15.6
Sell small goods on the side of the street in town (CBD) (like sweets and cigarettes, or clothing)		6.4	2.9	5.0
Run a spaza shop from your house		22.3	28.5	24.8
Selling meat/chicken		6.4	8.7	7.3
Other retail		0.8	2.3	1.4
	Production	35.5	25.1	31.2
Make food for sale		5.2	4.1	4.7
Brew beer for sale		1.6	5.2	3.1
Make clothes for sale		27.1	10.5	20.3
Furniture making and selling		0.4	2.9	1.4
Farming		0.4	1.2	0.7
Other production		0.8	1.2	1.0
	Services	11.6	20.9	15.3
Be a hairdresser or beautician		4.0	0.0	2.4
Transport services (e.g. operate a taxi)		1.2	8.1	4.0
Phone services		3.2	2.3	2.8
Other services		2.8	9.3	5.4
Number of observations		249	174	423

Source: *Khayelitsha Survey, Wave III*

Table 2: Matrix of Statistical Significance for Different Mean Hindrance Levels (alpha=.05)

Hindrances		h1	h2	h3	h4	h5	h6	h7	h8	h9	h10	h11	h12	h13	h14	h15	h16	h17
Little (Expected) Profit	h1								2		1		2			1		
Pre-entry Profit Uncertainty	h2								2		1		2					
Government Not Allow	h3	2	1		1				2	2	2	2	2			2		
No Newcomers	h4								2	1	2		2			1		
No Specific Skills	h5	2	2		2				2	2	2	2	2			2		
Can't Start Any Business	h6	2	2		2	1			2	2	2	2	2		1	2		
Shame	h7	2	2	2	2	2	2		2	2	2	2	2	2	2	2	2	2
Crime	h8																	
Jealousy if Successful	h9								2				2					
No Access To Start-Up Capital	h10								2				1					
Variable Income	h11								2	1	2		2			1		
Risk of Business Failure	h12								1									
Harris-Todaro	h13	2	2		2				2	2	2	2	2		1	2		
No Social/Bus Network	h14	1	1						2	2	2	1	2			2		
Transport Costs	h15								2				1					
Family Ask For Money	h16	2	2		2				2	2	2	2	2		1	2		
LT Cost in Family	h17	1	2		1				2	2	2	2	2			2		
Sum		14	14	2	12	3	2	0	31	18	22	15	28	2	5	19	2	2

A "1" denotes that the column hindrance dominates the row hindrance using a standard pairwise comparison test at a 5 percent level of significance. In other words, the comparison of means test is rejected if the pvalue is < .05.

A "2" denotes that the column hindrance dominates the row hindrance using a 5 percent level of significance that adjusts for multiple comparisons. The Bonferroni-Holm method of adjustment was used with the pvalue threshold set at .05/(136-j) after listing the p-values from smallest to largest (1, 2, …j … 136).

Source: *Khayelitsha Survey, Wave III*

Table 3: Classification of Significant Hindrances

Classification of Hindrance	Average hindrance level	Proportion stating hindrance is large or very large deterrent to entry into self-employment
Critical mean > 3.5 Prop. > 66%	**Crime**	**Crime**
Severe mean > 3.0 Prop. > 50%	**Risk of Business Failure** **No Access To Start-Up Capital** **Transport Costs** Jealousy if Successful Pre-entry Profit Uncertainty	Crime **Risk of Business Failure** **No Access To Start-Up Capital** Transport Costs
Significant mean > 2.75 Prop. > 33%	No Access To Start-Up Capital Transport Costs **Jealousy if Successful** **Pre-entry Profit Uncertainty** **Little (Expected) Profit** Variable Income No Newcomers	Risk of Business Failure No Access To Start-Up Capital **Transport Costs** **Little (Expected) Profit** **Jealousy if Successful** **Variable Income** **No Newcomers** **Pre-entry Profit Uncertainty** Government Not Allow No Social/Bus Network LT Cost in Family No Specific Skills

Entire Sample, Chosen Activity
Hindrances may fall in more than one category if the 95 percent confidence interval for the population parameter falls over two regions. **Bold** lettering denotes the position of the sample mean.
Source: *Khayelitsha Survey, Wave III*

Table 4: Matrix of First Order Stochastic Dominance results

Hindrances		h1	h2	h3	h4	h5	h6	h7	h8	h9	h10	h11	h12	h13	h14	h15	h16	h17
Little (Expected) Profit	h1								2		1		2			1		
Pre-entry Profit Uncertainty	h2								2		1		2					
Government Not Allow	h3				1				2	1	2	1	2			2		
No Newcomers	h4								2	1	1		1			1		
No Specific Skills	h5	1	1		1				2	2	2	1	2		1	2		
Can't Start Any Business	h6	1	1		2				2	2	2	2	2		1	2		1
Shame	h7	1	1	1	2				2	2	2	2	2	1		2		1
Crime	h8																	
Jealousy if Successful	h9								2		1		1					
No Access To Start-Up Capital	h10								2				1					
Variable Income	h11								2	1	2		2			1		
Risk of Business Failure	h12								1									
Harris-Todaro	h13				2				2	2	2	1	2			2		
No Social/Bus Network	h14	1	1						2	2	2	1	2			2		
Transport Costs	h15								2									
Family Ask For Money	h16	2	1		1	1			2	2	2	1	2		1	2		
LT Cost in Family	h17	1			1				2	2	2	2	2			2		
Sum		7	5	1	10	1	0	0	31	17	22	11	25	1	3	19	0	2

A "1" denotes that the column hindrance dominates the row hindrance within the sample. In other words the cumulative relative frequency is higher for the row hindrance for the "no hindrance" to "large hindrance" responses.

A "2" denotes that the column hindrance dominates the row hindrance within the population. In other words the cumulative density function within the population is higher for the row hindrance for the "no hindrance" to "large hindrance" responses at the 5 percent significance level. (This analysis does not adjust for multiple comparisons.)

Source: *Khayelitsha Survey, Wave III*

Table 5: Within Person Comparisons,
Percentage of individuals giving hindrance A a score at least one point higher than the score for the hindrance B

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2 dominates	23.1															
dominates 2	31.8															
3 dominates	24.7	27.9														
dominates 3	39.5	43.2														
4 dominates	29.1	28.5	33.3													
dominates 4	36.8	37.4	21.6													
5 dominates	25.0	24.3	31.5	27.8												
dominates 5	38.7	39.0	24.8	33.0												
6 dominates	22.0	19.7	28.9	21.9	17.0											
dominates 6	43.6	43.9	30.5	37.0	27.3											
7 dominates	11.4	14.9	17.4	14.2	14.2	17.8										
dominates 7	58.0	62.6	40.8	50.9	48.8	45.4										
8 dominates	52.7	54.5	56.3	55.3	63.6	66.0	80.6									
dominates 8	13.5	13.6	13.8	15.1	13.7	9.0	5.6									
9 dominates	38.6	33.0	45.9	39.7	43.1	49.1	66.0	18.5								
dominates 9	35.2	31.7	25.0	25.2	22.2	18.9	10.8	50.0								
10 dominates	39.7	38.9	47.6	41.1	47.9	52.1	65.7	23.3	40.4							
dominates 10	27.4	29.3	19.4	26.1	18.8	16.4	12.0	43.9	30.1							
11 dominates	32.4	28.7	36.9	31.9	31.9	37.8	55.9	17.1	26.3	21.7						
dominates 11	31.2	34.1	24.8	31.5	24.2	20.3	12.6	56.0	39.4	42.1						
12 dominates	43.4	43.5	52.2	46.9	54.0	56.6	73.7	20.0	44.0	36.2	45.2					
dominates 12	21.3	17.4	19.5	20.1	17.2	12.9	10.1	36.4	22.2	26.1	14.6					
13 dominates	22.7	18.3	30.8	24.0	25.3	33.0	44.5	12.0	17.2	16.2	16.5	13.3				
dominates 13	45.2	47.7	31.6	39.8	34.6	33.7	16.9	63.0	49.9	52.4	39.8	61.2				
14 dominates	27.5	24.2	34.7	27.2	30.9	35.3	51.5	14.1	25.4	15.5	27.6	14.5	35.1			
dominates 14	38.4	36.9	25.4	33.4	27.1	22.5	15.4	60.1	43.7	42.3	32.7	52.0	24.3			
15 dominates	39.7	36.3	42.2	39.3	45.1	49.7	62.3	21.8	34.0	33.1	36.7	23.3	47.8	44.7		
dominates 15	27.5	24.4	16.7	23.0	17.8	15.2	11.1	40.6	28.4	32.0	17.9	32.5	16.1	17.4		
16 dominates	25.1	24.1	29.5	26.3	27.5	31.8	47.9	13.0	19.2	15.6	19.1	10.6	36.1	22.7	15.2	
dominates 16	38.8	44.8	26.5	38.7	33.3	28.9	15.6	63.2	47.4	49.7	36.1	53.2	29.5	32.2	47.4	
17 dominates	29.1	25.2	33.4	28.5	30.6	34.1	50.5	15.9	23.5	17.6	21.5	13.2	35.6	26.9	17.1	27.9
dominates 17	36.5	40.6	26.1	35.4	30.6	25.8	16.0	55.7	44.2	41.1	29.7	46.9	21.6	28.3	39.5	19.4

25
sets highlighting tolerance

	Hindrance Guide
h1	Little (Expected) Profit
h2	Pre-entry Profit Uncertainty
h3	Government Not Allow
h4	No Newcomers
h5	No Specific Skills
h6	Can't Start Any Business
h7	Shame
h8	Crime
h9	Jealousy if Successful
h10	No Access To Start-Up Capital
h11	Variable Income
h12	Risk of Business Failure
h13	Harris-Todaro
h14	No Social/Bus Network
h15	Transport Costs
h16	Family Ask For Money
h17	LT Cost in Family

Source: *Khayelitsha Survey, Wave III*