India’s informal economy employs over 90% of its labour force across enterprises that are undocumented, cash based, and spread across more than 650,000 settlements, posing a tremendous challenge to productive lending. On the other hand with an estimated $2 trillion in collective annual turnover just in the non-agricultural segment, the potential opportunity in the informal sector is immense. Under these ‘data dark’ circumstances, how can we identify genuine enterprise with the potential to scale, and thereby enable ‘Value Lending’, an efficient allocation of capital to productive enterprise?

India has a unique economic landscape. It is a country of 1.2 billion people and yet only 40 million people are employed in its formal economy of 877,000 active firms. The rest – 92%, of India’s estimated 481 million strong labour force, operates largely if not wholly, in an informal or undocumented cash economy. According to the 2005 economic census, 41 million non-agricultural enterprises employed about 60 million people. More recent estimates based on the Survey on Unincorporated Non-agricultural Enterprises (NSS 67th Round : July 2010 - June 2011) put this number in excess of 100 million people. The remaining are employed in agricultural enterprise or are daily wage workers.

With job opportunities in the formal economy restricted to a small proportion of the population, India’s greatest economic challenge is to enable growth of high potential enterprises in the expanding non-agricultural segment of the informal economy. Eventually they must be guided into the formal sector.

While there are many barriers to success and scale among these enterprises, inadequate access to capital is among the more important. The India economic census of 2005 indicates that only 3% access institutional finance while only 10% have access to any kind of finance. With only 8% of the workforce operating in the formal economy and less than 12% actively participating in the banking system, capital is also scarce. This places an imperative on its productive allocation. Yet with undocumented enterprises spread across more than 650,000 settlements, the informal economy poses a tremendous challenge to productive lending. How do we know who is a genuine entrepreneur? How can we estimate the potential of an enterprise and therefore its need for capital? How do we cost effectively find the stars in such a vast ecosystem?

The productive enterprise of the informal economy has the potential to transform India if appropriately nurtured. With an annual turnover in just the non-agricultural segment estimated at $2 trillion and growing, the potential opportunity is large. It is therefore essential that we find ways to overcome the data challenges to enable selective and cost efficient allocation of capital to productive enterprise or Value Lending. How can we understand and meet these challenges to tap this opportunity?
If one could selectively allocate capital to productive, fast growing enterprise the benefits are dramatically non linear.

This theoretical example shows the exponential difference in customer lifetime value for high growth enterprises assume that debt capital required by enterprise were to remain at a constant proportion of revenue through their growth trajectory.

Structural Challenges

Selectively allocating capital to productive, fast growing enterprise engenders multiplicative growth in the economic value delivered per rupee lent. Correspondingly it engenders a greater customer lifetime value for the lender. The nonlinear benefit of such allocation is dramatic. The theoretical example above shows an exponentially increasing lifetime value with enterprise growth rate assuming that the serviceable debt required by these enterprises remains at a constant proportion of revenue growth.

The informal economy, however, presents a tremendous challenge to such selective allocation of capital.

Of the estimated 41.83 million enterprises outside of primary agriculture, only 1.5% have more than 10 employees and are largely firms in the formal sector. In the informal economy ~65% are enterprises of one, 30% have 2-5 workers and less than a fraction of a percent have more than 10 workers. Thus the large majority of enterprises operate at micro scale and remain at this scale for most of their lifetime.

Across many sectors, micro scale enterprise has been found to be highly inefficient, generating lower revenue per employee than their larger counterparts due to an inability to capitalize on division of labour, economies of scale, specialization of knowledge, automation and so on. Moreover, like businesses everywhere, a large number fail, a majority produce below subsistence revenues or simply remain static, and a very small percentage are productive and growing. Without any formal documentation, identifying where on the spectrum of business outcome a given enterprise may fall substantially raises the cost of due diligence and risk of lending to this sector.

Compounding the issue is that these businesses are largely scattered across India’s 650,000 villages. This disaggregated nature makes it difficult to both find and access these entrepreneurs. Thus relative to the small size of the loans delivered, the cost of due diligence and loan delivery is very high. As a percentage of loan size, these costs are several fold the cost of servicing larger loans in the formal sector, dramatically raising the cost of capital to these small enterprises and lowering their potential for profit and growth.

The question at the forefront is therefore: How can we reliably and cost effectively identify those with the capability for productive outcome and determine the scale at which they operate?

Herein lies the challenge.

1. For Example:
Danny Leung, Césaire Meh and Yaz Terajima


How can we reliably and cost effectively identify those with the capability for productive outcome and determine the scale at which they operate?
The Malegam committee estimated that 75% of microfinance was not, in fact, microenterprise lending, but consumer lending. This is diametrically opposite to bank lending to the formal sector where ~80% goes to industry and services and only 20% for personal consumption. Moreover, a large number of microfinance borrowers were borrowing from multiple institutions far beyond their means.

Given that consumer borrowing comes with an interest burden, the value multiplier for every rupee lent is likely to fall below 1, where the purchase may enable incremental productivity of the individual but perhaps not to the extent of the interest burden. Such a ratio also bears considerable risk as the additional wealth created in these relatively isolated rural ecosystems can be considerably lower than the collective interest burden. The wave of defaults up to 90% following the Andhra ordinance highlighted the clear dependence on additional capital supply for repayment and the paucity of enterprises that were productively deploying debt capital. All together this brought to the forefront the gross misallocation of microfinance capital to end uses of low value.

The 2010 crisis in the microfinance industry, kicked off by the Andhra Ordinance that limited collection practices and prompted regulation, brought to the forefront the issues in the industry. The resulting study by the Malegam committee constituted by the RBI estimated that 75% of microfinance was not, in fact, microenterprise lending, but consumer lending. This is diametrically opposite to bank lending to the formal sector where ~80% goes to industry and services and only 20% for personal consumption. Moreover, a large number of microfinance borrowers were borrowing from multiple institutions far beyond their means.

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Since the Andhra crisis the risks of lending in this segment have been considerably mitigated by industry level credit bureaus and regulation that has limited the ability for people to borrow from multiple lenders. However, the fundamental problem of intelligent and differentiated capital allocation still remains.

Given that supply of funds is grossly limited, it is imperative that we identify and implement mechanisms for more efficient deployment of capital in the informal economy, such that it delivers the highest possible value multiples. Such Value Lending represents a potentially large and multiplicative opportunity that can enable faster growth of enterprises, and greater productive outcome for the economy as a whole.
Defining a Value Equation

In the informal economy we are necessarily lending to an individual, most often representing an enterprise of one. What determines an individual’s potential for productive success?

A more capable individual has the capacity to produce greater output. However, the ecosystem largely determines the potential to which that can be realized, presenting a repertoire of opportunity or obstacles that will multiply or detract from the individual’s potential.

To illustrate this point more explicitly let’s say the most productive and capable person could produce and sell 1000 units of a product required by each family at the rate of one unit a month. If he lived in an isolated village of 100 households he could at best sell 100 units in a month, and his outcome would be not much better than someone with half his capability. On the other hand if he were to live in or have easy access to an ecosystem of 5000 or more households, he could realize his maximal capacity and perform twice as well as someone with half his productive capability. It is important to note, however, that while population is a simple example of an ecosystem characteristic that easily illustrates the possible constraint of ecosystem on outcome, it is by no means the sole determinant of market success. Rather there is a wide array of individual and ecosystem characteristics with bearing on success. Let’s call them I and E respectively.

The value multiplier V created per rupee is thus a function of the product of these two factors.

\[ V = f(I, E) \]

This bears analogy to the Cobb Douglas production function which describes the value multiplier of capital at the firm level, essentially the productive output per unit of capital, as a product of the total labour and macro or external enablers of productivity.

However, more important than a theoretical relationship is an empirical mechanism to estimate the values of I – individual capability and E – ecosystem capability. What aspects of an individual determine his potential outcome? What aspects of an ecosystem or settlement determine how well it enables its resident entrepreneurs?

The Data Dilemma

Over the past decade the amount of data available about individuals and their choices and behaviors has been exploding as more people have turned to the internet as the starting point for much of what they do. Analysis of this ‘Big Data’ is increasingly becoming a key basis for efficiency, productivity and innovation, enabling more individually tailored, timely and location specific product offerings. In dramatic contrast, the informal economy is data dark, leaving little or no digital footprint and therefore little opportunity to know and understand its behaviour, needs and decision making. On the other hand, data is at the cornerstone of empirical understanding of the factors that influence individual economic outcome and productivity.

The core requirement to overcome this challenge is thus a mechanism for acquisition of this dark data in a manner that is reliable, cost efficient and fast. With the increasing cost effectiveness of mobile devices and data management tools, it is now becoming possible to acquire dark data at low cost and unprecedented pace. Nonetheless, dark data comes with a cost and it is therefore essential to identify the right variables to acquire. Which variables have high predictive value and can be reliably obtained? While cash transactions are not easy to record, individuals and ecosystems nonetheless create a physical footprint that can be easily measured with high validity and tells a story of their past and therefore their future.

Over the past three years Madura has built mechanisms for fast and cost efficient field collection of valid and clean data spanning many thousands of variables along numerous dimensions. A growing database of dark data spanning many thousands of villages and tens of thousands of individuals enables analytics that identify those variables that best estimate I and E and therefore enable efficient selection of people and places where lending can deliver the highest value outcome.
The challenge here is to identify which variables can identify the growth and economic vibrancy of a village. An economically vibrant ecosystem will also yield a greater number of successful entrepreneurs.

Identifying Productive Ecosystems

The ecosystem in which one operates has enormous implications for the possibilities of success from market size to availability of raw materials and energy to connectivity. While population is a typical heuristic used for decision making, it is in no way exclusively indicative of the economic activity and productive potential of an ecosystem.

As a case in point, two cities in Asia of comparable size such as Delhi (16 million) and Tokyo (13 million) are vastly different in total output or GDP. Tokyo produces a GDP more than 3 times that of Delhi. Thus a company making a market decision on cities to enter in Asia would go very wrong if population was the only data point that they used, and indeed few would do so. Importantly however, the same principle applies at all geographic scales. Villages of similar populations, even within the same State, are also highly variable in their productive outcomes.

Above we provide a view of the economic diversity of villages of similar population within Tamil Nadu. Occupation profiles are fundamentally different across these villages and so also their income profiles. This demonstrates clearly the dramatic difference in the need and capacity to utilize credit.

Economically they are very different ecosystems. Furthermore, among smaller settlements of 10,000 people or less, the census demonstrates vast movement and change over the last decade, far greater than the larger towns and cities. As shown in the example of Tamil Nadu below, there have been distinct winners - settlements that have grown dramatically in scale suggesting relative economic vibrancy. Conversely others have significantly decayed. Thus ecosystem risk at this level can far outweigh individual risk. Rising tides lift all ships and so also receding tides can ground them.

The challenge here is thus to identify which variables can identify the growth and economic vibrancy of a village. An economically vibrant ecosystem will also yield a greater number of successful entrepreneurs.

Rural settlements are in flux

Many have grown dramatically over the past decade while others have decayed.
Every aspect of our personality and action leaves at some level a physical trail in the world. Often this can be measured and these serve as excellent proxies that are easy to gather with high reliability and accuracy.

Identifying Productive Entrepreneurs

What determines whether someone will be successful at building and running an enterprise? Just as we often use population as a heuristic for market potential, we often use education level as a heuristic for human capability. However, entrepreneurial capability runs far beyond this simple metric and people can have dramatically different capabilities despite similar education levels. In the US for instance, Forrester research has estimated that 20% of millionaire entrepreneurs never went to college.

Conversely, a very small minority of college graduates are millionaire-entrepreneurs. Thus education alone provides neither good insight into whether or not the person is an entrepreneur nor how successful they are. The same is true for entrepreneurs in India’s informal economy. Among rural microfinance borrowers, microentrepreneurs are indistinguishable from consumers along this dimension. Furthermore, entrepreneurs of the same education have widely varied business outcomes, as shown in the example of 10th to 12th pass rural retailers below. What then determines whether a person is entrepreneurial and has characteristics that will enable their productivity?

Attitudes and personality types, for example, have been thought to underlie entrepreneurial success. In this context, various initiatives have been made to create psychometric profiles of entrepreneurs. While these have been applied with some success, they are not successful in determining enterprise outcome and therefore have limited application in credit decisioning. Furthermore, they are typically lengthy to administer and not easily done at scale, particularly in a context where a large foot force of loan officers is required to administer it.

Rather it is essential to first discover the categories of variables that have high predictive value and then identify mechanisms of gathering these in a manner not subject to error or bias from self-reporting. Indeed every aspect of our personality and action leaves at some level a physical trail in the world. Often these can be measured and serve as excellent proxies that are easy to gather with high reliability and accuracy. Moreover, such variables can far exceed the predictive power of self-reported variables that are often clouded by biased self-perception or a motivation to misreport on the part of the assessed individual.

Indeed several such variables do exist, enabling broad determination of individual enterprise capability in the value equation.
The Bottom Line

Productively directed debt capital is not just an imperative for the growth of the economy but also for sustainable growth of the finance industry. The failure to move towards productive capital allocation will amplify the risks of lending to the informal economy over time leading to bubbles and busts with large negative consequence. Using research driven variable selection coupled with stringent data acquisition, management and analytics, it is possible to make intelligent decisions about capital allocation in the informal economy and move towards a Value Lending paradigm.

For lenders, the benefits are far reaching along the dimensions of speed, cost, risk and long term customer value. Analytics driven selection can quickly separate high potential prospects allowing tailored product offerings and an increased speed of operation. It can also reduce the cost of due diligence by focusing it on the most promising prospects. This has relevance for both location and borrower selection. Bottom line, placing a branch in a high potential ecosystem will yield more high potential borrowers with greater lifetime value.

We believe that going forward, efficient process mechanisms, while critical, will be insufficient to manage risk and deliver growing productivity to the lending institution. Value Lending driven by dark data analytics is an imperative of the future.

MADURA MICROFINANCE

Madura Microfinance is a non-banking finance company based in Tamil Nadu India. Since its founding Madura has disbursed over 9 billion Rupees (over $150 million) in micro loans to over 500,000 people across 2000 villages. Recognized by Forbes (in the company’s previous namesake, Microcredit Foundation of India) as the most cost efficient microfinance institution worldwide, Madura has consistently been able to lend profitably at the lowest rates on the market. Committed to bringing greater intelligence to identifying and enabling microentrepreneurs Madura’s labs have built large scale mechanisms for aggregating hard to acquire or ‘dark’ data from rural areas, delivering analytic insights and predict enterprise revenue capability, as well as knowledge products that enhance microenterprise outcome.