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No really, (crowd) work is the silver bullet

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Abstract

Humanitarian assistance has been on the global conscience for approximately 70 years (since WWII), and yet in 2010 2.4 billion people still lived on less than $2 per day. As Easterly has pointed out: to see where we went wrong, just look at the incentives. To create true sustainable economic change requires realignment of incentives, particularly the incentive to work and invest. Employment is fundamentally required, and crowd work is the current best hope for providing that employment quickly, with global reach, and at scale. This approach is grassroots, bottom-up, and puts the income directly in the hands of people who need it. Further, it leverages the natural, inherent incentives embodied in capitalism (workers work to create value and get paid, employers want to minimize costs of labor) to shift as much work as possible to the places where it will have the most beneficial impact. We present an analysis of global trends supporting crowdsourcing as a solution, and the results of a pilot project in a rural Kenyan village which demonstrates that this approach is an extremely promising way to meet basic needs to promote economic growth.

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1. Introduction

In 2010, 2.4 billion people worldwide still lived on less than $2 per day [1]. Addressing this issue has been, if not a global priority, at least on the global conscience for approximately 70 years (since the end of WWII). Throughout those 70 years many different approaches have been tried. There continues to be vigorous debate about the merits of different approaches: e.g. Sachs argues for the effectiveness of foreign aid and thus for increased aid expenditure to start people up the ladder of growth [2], Easterly argues for reducing aid in favor of approaches that align individual incentives with large scale goals [3], and Banerjee and Duflo argue that individual interventions should be evaluated on a case-by-case basis [4]. Each point of view has its merits; instead of weighing in on which is best, here we present an approach that is in accord with the major ideas of 1) a jump start up the ladder of growth, 2) properly aligned incentives, and 3) measurement of results.

Any reasonable view of sustainable development includes a picture of economic self-sufficiency; for the poor to become (and stay) not-poor, most would agree that they need opportunities for productive, value-creating employment. They may or may not need bed nets, toilets, or cell phones, but it is certain that they need jobs. Many popular development interventions, including water treatment and distribution, improved healthcare, and education, are often justified on the grounds that they allow the poor to be more productive, via more time, energy, or skills. It is in this sense that we assert that "work is the silver bullet". It is almost tautologically true that doing valuable work and getting paid for it results in economic growth.

For clarity we should make several disclaimers. Here we are targeting systemic or structural poverty, caused by factors external to an individual and excluding poverty caused by, e.g. mental illness (this is not to say that this sort of poverty is "less bad" – only that it is not the focus of this paper). We also recognize that economic growth in the sense of increased income is not the ultimate goal, but rather a contributor to a broader type of human development. We would argue, for example, that improved health is a terminal goal, and that instead of improving health to improve productivity, we aim to improve socio-economic status in order to improve health (as demonstrated by the seminal Whitehall studies [5], [6]). Finally, while we will argue that "crowd work" (that is, broadly envisioned crowdsourcing-based work) is a nearly universally applicable tool, we expect it to lead eventually to diversification of employment.

2. Why "crowd work" works

2.1. First – why work?

Beyond being closely related to economic growth, providing opportunities to work for income eliminates the damaging incentives created by aid handouts. When the path to development goes through employment, there is an incentive to use resources to invest in the future: e.g., education, physical capital, infrastructure. Further, when an employer pays an employee for labor, both sides receive something of value, whereas aid relies on the generosity of donors (or perhaps their extremely low discount rate for the time value of money). To give an indication of the scale of resources at play, consider Figure 1, which compares Foreign Direct Investment (that is, private investment by businesses) and Official Development Aid from all sources into developing countries over time [7][8]. In 2010 FDI was approximately seven times as large as ODA, and growing much more quickly.
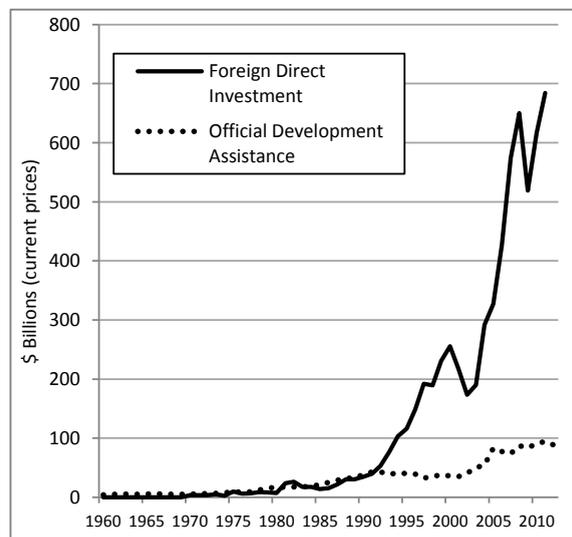

Fig. 1. Comparison of the size of foreign direct investment (FDI) and official development aid (ODA) over time.
Beginning in the early 1990's FDI began to rapidly outpace ODA.

Finally, any employment scheme that puts money in the hands of people who are experiencing extreme poverty allows those people to invest it in the ways that they find most beneficial, using their local knowledge and based on their own priorities. Earned income can be used to pay for water treatment, food, latrines, bed nets, health care, etc. The *liquidity* of income is a distinct advantage over in-kind transfers. The question of how the income is actually used, for a pilot study of the crowd work approach, is addressed below.

2.2. What is "crowd work"?

Crowd work is a broad term that describes a type organization of labor in which laborers are loosely affiliated with firms, and work of many types is widely distributed. It is an extension of "crowdsourcing," which, as defined by Jeff Howe, "represents the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call" [9]. Recent work by [10] has highlighted the benefits of this system of labor organization for both firms and laborers and laid out a future vision and research agenda for a system that is advantageous to all. Crowd work encompasses both "human computation" or "microtasking" – work in which the tasks are very small, short, and simple – and more complex and highly skilled work such as graphic design, computer programming, and technical research and development [11][12].

2.3. Unique features of crowd work make it especially appropriate as a poverty-fighting tool

Crowd work is especially well-suited to fighting poverty for a number of reasons. It is inherently distributable to any place with internet access (and while many areas of the world do not yet have access, large firms such as Google are making targeted investments to increase connectivity in developing countries [13]). At the human computation or microtasking end of the spectrum of task complexity, the work requires no specialized skills and minimal training, making it broadly accessible to almost anyone. Further, as skills are developed, crowd work provides opportunities for more engaging and demanding work (similar to the development of the information technologies services industry in India). On existing crowd work platforms such as Amazon's Mechanical Turk, microtasks are often priced at a few pennies each, allowing workers to earn on the order of several dollars per hour. While many US-based "Turkers" complain about the low rates, for someone who otherwise would make $1-$2 *per day* for difficult manual labor, these wages are attractive.

The crowdsourcing industry is a "high growth, early stage industry", with revenue growth of 75% 2010-2011, and total 2011 revenue from a sample of 15 crowdsourcing companies of $375 million (this is revenue *to the companies*, and is only an indirect indication of disbursements to workers; many such companies charge an overhead fee on top of each transaction) [14]. A related industry, "impact sourcing", in which traditional business process outsourcing work is sourced in developing countries for social benefit, was recently estimated at $4.5 billion in size, with projected growth to $20 billion by 2015 [15].

Finally while access to the necessary electricity, internet access, and computing resources presents a challenge in many (especially rural) areas, it is not insurmountable. MobileWorks [16], mClerk [17], and TxtEagle [18] are all examples of crowdsourcing systems built to leverage mobile phones (basic phones or smartphones). We believe that if there is enough available crowd work, potential workers in developing countries will be able to make the necessary investments to participate (possibly via cybercafés, microfinancing, cooperatives, or other arrangements).

2.4. Results from our pilot project and income survey

To investigate the feasibility of providing crowd work in rural areas of developing countries and assess the impact it would have, we did a pilot project in the community of Kamuga, Kenya. Most of the 500 residents of Kamuga live below the $2 per day poverty line, and participate in subsistence farming. We recruited 7 people (4 males, 3 females) ranging in age from 19 to 46, 4 of whom had previous computer experience and 3 of whom had none. We developed a simplified crowdsourcing platform called PulaCloud, and tasked the workers with classifying approximately 28,000 images from biomedical research articles as to whether or not they depicted a biochemical

pathway. The image classification task is for a bioinformatics research project to make pathway figures searchable and data mine-able. The workers completed approximately 100,000 tasks and were paid $2000 for the project, divided among the seven according to how many tasks they completed. Six months later we interviewed 5 of the 7 workers (the others had moved away from the community) about how they spent their income. Figure 2 shows the distribution over 4 major categories formed by grouping the 33 subcategories from the survey. The workers spent over half of the money on educational expenses for themselves or a family member; the rest was spent on basic needs (food, clothing, health care), investments in small businesses (e.g. selling fish in a kiosk or paraffin for lighting to their neighbors), and goods like pots and radios. We find the choices that workers made about how to spend their income extremely encouraging.
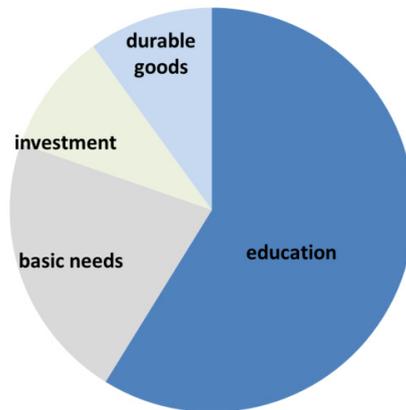

Fig.2. Distribution of spending across 4 major spending categories formed by the grouping of 33 subcategories. The workers spent the majority on education, and spent nearly all of it on productive investments for the future.

Finally, we would like to note that PulaCloud is organized as a for-profit entity. The profit incentive for PulaCloud means increasing the throughput of crowd work on the platform (which means increasing the payments to workers) as well as minimizing costs (which means seeking out those workers experiencing the most severe poverty). This is not a "digital sweatshop," however; it is simply a case where the individual incentive is closely aligned with the collective good.

3. Conclusion

We believe that crowd work can and should be a major contributor to the elimination of global extreme poverty. It has a number of significant advantages as an approach to economic growth, and has the potential to scale up to considerable size. Not only this, but there is no need to wait - it can be applied starting right now. The main impediment is the fact that much of the currently existing crowd work is not available to workers in developing countries because the platforms either actively block international workers from registering (Mechanical Turk) or do not have payment options for many countries. This despite the fact that Kenya, for example, has a very advanced mobile payment system in MPESA.

We have shown with our pilot study that it is both feasible and advantageous to employ workers in developing countries in crowd work. We recommend 1) further scaling up of the crowd work approach and 2) concomitant additional study of the effects of crowd work employment on poverty.

Acknowledgements

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