What is the state of microwork in Africa?

A view from seven countries.

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INTRODUCTION AND MARKET BACKGROUND

Digitisation and networked communications are increasingly touching all aspects of modern life and all sectors of the economy. One sector is employment, which has served as a key organising principle for society since the Industrial Revolution. Currently, several forces are reshaping traditional employment and, more generally, how labour markets operate. On one hand, advances in artificial intelligence, in combination with modern robotics, are threatening to automate jobs that were previously considered too complex for non-human execution. On the other hand, online labour platforms facilitate the unbundling of work into smaller tasks that employers can contract out to freelance workers around the world.

From a development perspective, the digitisation of work enables job seekers in less economically developed countries to enter labour markets in more economically developed countries that were previously inaccessible due to high communication costs and barriers to labour migration. Virtual labour mobility therefore has the potential to raise incomes by decoupling workers from the geographical constraints of local labour demand and improving the matching of work with individual skills (Graham et al. 2017a). At the same time, online work may erode labour protection standards and unleash a global race to the bottom in wages and workers' rights. Further, there is evidence that online labour platforms exacerbate the frictions that result in inferior labour outcomes for women, ethnic minorities and other disadvantaged groups (Belle & Mudavanhu 2018).There is a wide range of viewpoints about what constitutes digital labour (Belle & Mudavanhu 2018). This paper takes a narrow definition and focuses on digital labour that would not be possible in the absence of technological infrastructure and the capabilities provided by TCP/IP-based services.

Digital gig work can be offered through multiple means. One model is freelancing contracting online. A platform, such as Amazon Mechanical Turk, offers identifiable pieces of work to contractors through a flexible freelance contracting arrangement. Such work, which could include web development, book editing and report writing, is offered in an open market to potential contractors, using Internet platforms. Another type of job in the digital gig economy ecosystem is crowdsourcing. Crowdsourcing allows employers to

allocate jobs to an unknown group of people via the Internet, instead of assigning them to internal employees (Kucherbaev et al. 2014; Belle & Mudavanhu 2018). The difference between freelancing and crowdsourcing is that the freelancing model provides an option to retain a person for a particular job, while with the crowdsourcing approach, no single contractor is used. Freelance contracting and crowdsourcing both fall under the umbrella of outsourcing. Outsourcing constitutes tasks that cannot easily be automated, such as translation, transcription, image or object recognition, and annotations (Ford et al. 2015). Crowdsourcing allows firms to distribute jobs to a number of different people (Mtsweni & Burge 2014). The most popular tasks on Amazon Mechanical Turk have been found to be the completion of surveys, categorisation, providing business feedback, sentiments rating, content review, data processing and tagging (Deng, Joshi & Galliers 2016; Belle & Mudavanhu 2018). Crowdsourcing tasks can be voluntary or paid, and the common crowdsourcing platforms are Amazon Mechanical Turk, CrowdFlower and Microworkers (Belle & Mudavanhu 2018). Chiu, Liang and Turban (2014) categorise crowdsourcing into intelligence, crowd content creation, crowd voting, funding and microwork.

The objective of this paper is to understand the participation of African labourers on the online work or microwork platforms. Microwork entails dividing up a large job into many small manageable pieces of work and allocating them to a large number of workers using an Internet-based platform (Kobayashi et al. 2014). Microwork is characterised by online forum participation, data input and image tagging, which are usually performed quickly and require no specialised skills. Usually, workers are paid small amounts of money for each task. High adoption of Internet-enabled devices has led to some platform developers focusing on micro-tasks that can be performed on mobile phones (Murugesan 2013).

In Africa, although US platforms like Freelancer, Elance (Upwork), ODesk and Amazon Mechanical Turk are the only ones that really have global scale, they have been progressively challenged by local platforms in specific countries. M-Abode is a mobile microworking platform funded by the United States African Development Fund for Microworkers based in emerging markets, especially those in Africa. Mintor is a South African platform looking to connect students (in the supply market) and SMEs (in the demand market). Hooros (South Africa), Crew Pencil (South Africa), Kuhustle (Kenya), Asuqu (Nigeria) and Jana (formerly Txteagle) are other African examples.

Uber is the transport application that is the most used in Africa. It has developed its services in Egypt, Kenya, Morocco, South Africa and Ghana. Competition exists with MondoRide (Saudi Arabia) in Kenya and Tanzania, Maramoja (Kenya), Easy Taxi (South America) in Nigeria and Kenya, and Olga Taxi (Nigeria). Taxify has emerged as a competitive e-hailing platform to Uber in South Africa. Taxify and Uber drivers face serious challenges around registration of vehicles with municipalities, as well as with safety and security issues. Although Uber introduced cash payments to make their services more accessible, according to several drivers interviewed during June and July 2017, this has made them more insecure as they have no record of the passenger, which they do have with the credit card payment system. Criminals have used stolen SIM cards to hail taxis, which they then rob or hijack. Uber and Taxify have introduced emergency apps or response systems but, as an Uber taxi driver who was hijacked in Umlazi, a township outside of Durban, pointed out, as they robbed him of his phone and car at gunpoint, he was left stranded in the street with no access to the app. He had to walk around for several hours, going door to door in the early hours of the morning, before anyone would let him into their home to contact the Uber emergency centre. (Interview with Uber driver, Durban, 26 June 2017)

In July 2017, Uber and Taxify drivers, through an organising association, gathered in Johannesburg to protest against the 25% levy that Uber takes from them – Taxify only takes 15% – as increases in fuel prices meant that drivers were barely making a profit after covering their costs. As many drivers were employed by owner-drivers, their profit margins were eroded even further. When Uber drivers (many of whom drive for both Uber and Taxify) were asked why they remain with Uber when Taxify would take only 15% of their fees (instead of Uber's 25%), they indicated that Uber had a wider customer base and more demanding registration requirements, which led customers to believe it was a superior service. Some drivers said that although this was the perception, they thought that there was not much difference for the user, and so Taxify with its lower fee levy served them better. (Interviews Durban, Cape Town and Johannesburg June–July 2017)

Some private service providers have developed in the impact-sourcing arena. Impact sourcing is a specific type of online work that is aimed at training and including vulnerable communities in the labour market. It started developing in India, Kenya and South Africa and employed about 150 000 workers in 2016 (World Bank 2016). In Africa, Samasource operates in Ghana, Kenya and Uganda. Digital Divide Data (DDD) operates in Kenya,

where disadvantaged youth (between the ages of 17 and 24) are recruited from urban slums to participate in a programme of training and employment, and to provide digital content services to DDD clients.

Digital labour has the potential to solve many of the challenges that face African countries, such as unemployment and poverty (Graham et al. 2017a). Despite this, there is minimal research on the potential of these platforms to have an effect on employment levels among African countries. Although the development of such services has added to the increased potential for freelancing and entrepreneurship of citizens in some African countries, there is much that remains to be understood about the digitisation of work and its long-term implications for development and, particularly, employment. This research provides the only nationally representative, demand-side evidence base for microwork in seven African countries, which forms part of a broader comparative analysis of 20 countries across the Global South, providing unique insights into the development context.

The microworker typical profile

Quantitative studies on microwork have been based on data extraction from one specific platform. On some platforms, workers with a full order agenda over the coming weeks or months have invisible profiles, which can create a statistical bias in the sample of data collected towards « less successful » workers (Graham et al. 2017a). However, these studies have the advantage of providing some demographic insights on microworkers.

Ipeirotis (2010) has made a quantitative study on Amazon Mechanical Turk (AMT) workers (‘Turkers’), 50% of whom come from the United States and 40% of whom come from India. According to their country of origin, Turkers have different demographics and motivational reasons to participate in AMT. Around two thirds of US Turkers are women, whereas two thirds of Indian Turkers are men.

A study on the Elance platform led by the World Bank (2016) has assessed that, on a global level, 44% of workers were women, compared to 25% in the non-agricultural economy. Young workers are over-represented in the general Turkers population in both countries, confirming another study on the freelancer.com platform according to which 57% of workers are between the ages of 16 and 25 (World Bank 2016). 28% of Indian Turkers against 14% of US Turkers declare that AMT work is their main source of income,

whereas it is the case for 68% of respondents in Graham's study (2017b) on African and South Asia countries.

Expanding access to work

Although still nascent, the literature on online work has underlined the new opportunities and benefits offered by digital labour. As early as 2010, some World Bank publications highlighted microwork (Microwork in MENA 2011; Rossotto et al. 2012) as an opportunity for job creation, particularly for women and youth, and a contribution to poverty alleviation in rural areas: « matching platforms can improve labour market efficiency particularly in developing countries and in the informal sector, where information failures are large ».

Traditionally, work is geographically determined: Labour and its place have always been inextricably linked (Hudson 2001). In the early 1990s, countries like India and China started to benefit from outsourced work coming from developed countries (manufacturing industry). Then outsourcing expanded to other sectors including services: Digitisation has made it possible for stakeholders to work from different – and remote – places, making the world a giant labour market. Standing (2016) said of this phenomenon: « we have a mass migration of labour without the migration of workers ». Digital solutions have been more efficient than traditional ones and the labour market is no exception to the rule. As a result of network effects created by platforms, stakeholders have access to **larger markets at lowers costs** (Stevenson 2009) and **faster** (Kuhn et al. 2014).

The Nigerian government, supported by the World Bank and the Rockefeller Foundation, organised workshops in 2013 to introduce thousands of citizens to microwork platforms,[1] with the aim of reducing unemployment. In that same year, the Rockefeller Foundation launched the Digital Jobs Africa programme, building a partnership with the private sector, the government, the development community and the civil society.[2] These examples illustrate that work without geographical borders has been seen as an opportunity for governments and organisations to create employment in poorly served areas and has promoted microwork as a tool for development potential and an **opportunity for inclusion of the poorest populations. Yet despite these efforts, with Internet penetration as low as it is – and many countries sitting below the 20% critical mass for countries to**

[1] See http://innovation-village.com/nigeria-to-lower-unemployment-rate-with-naijacloud/
[2] See https://www.rockefellerfoundation.org/our-work/initiatives/digital-jobs-africa/

enjoy the network effects associated with economic growth and development – microwork is very limited across the African continent.

Although microwork enables **flexibility** in working hours and home-based employment, which increases potential access to work for women (because they are pressured to stay at home or because they need to take care of children) and for people with disabilities (who cannot find work in a traditional work environment) (World Bank 2016), there is little evidence of this taking off in Africa. Moreover, **skills** sets required to perform the micro-tasks are not available in many countries. Studies also identify an increase in work experience and in skills thanks to microwork: CloudFactory (2015) estimates an average increase of 27% in technical skills development, 30% in leadership skills development and 47% in management skills development. As indicated though, these increases are off very low bases and minimal microwork uptake. Likewise, although there is evidence that microwork can **increase livelihoods**, with direct benefits to the microworker and indirect benefits to the household and community – in a survey conducted in 2017 by the Oxford Internet Institute, 68% of workers said online work is important or very important to the household income (Graham et al. 2017b) – the number of people currently benefiting from this work on the continent is minuscule.

To some extent, digital work enables greater **access** to work. However, the fact that there are some limitations to this has become increasingly apparent, as the research and literature have developed.

Consideration of risks and drawbacks for workers[3]

Graham (2017a) highlights the risk that microwork could turn into digital 'sweatshops' that would make the poorest populations work exploitatively.

[3] Research ICT Africa is collaborating with the Oxford Internet Institute to set up a long-term structure to form a ‘Fairwork Foundation’ that will be committed to highlighting best and worst practices in the emerging platform economy. Selected stakeholders, including governments, platform operators, unions and donors, will be consulted to engage in a dialogue to establish the Foundation. Much like the Fairtrade Foundation has been able to certify the production chains of commodities like coffee and chocolate, the Fairwork Foundation will certify the production networks of the platform economy. This seeks to harness ‘consumer power’, along with leverage from workers and platforms, to significantly contribute to the welfare and job quality of digital workers.

Firstly, microwork raises the problem of **social and economic exclusion**. It may increase inequalities, depending on access to the Internet and on the skills it requires to be performed (including literacy). Affordable, quality broadband, as well as education and training, would enable greater participation in microwork.

Geographical discrimination has also been studied in the literature. In theory, online work platforms hire and pay qualified workers, regardless of their country of origin or any other characteristics unrelated to productivity. However, a quantitative analysis conducted on platform Nubelo (Spanish-speaking platform) showed that Spanish employers are more likely to hire Spanish workers than non-Spanish workers from other Spanish-speaking countries and that they are willing to pay a wage premium to hire domestically (Galperin & Greppi 2017). This is explained on one hand by the fact that « employers anticipate higher communication costs when working with foreign contractors » and on the other hand by information uncertainty (lack of verifiable information « tend[s] to attribute quality to individual workers based on their country of origin »). So, the expected distributional socioeconomic impact of microwork across countries is probably mitigated.

In addition, **power relations** between employers and the labour force are more unbalanced. Microwork raises the question of worker protection. Microworkers do not benefit from unemployment or health insurance or from guarantees of a minimum salary.[4] Lack of upgrading and of professional training results in poor skills development of workers compared to wage labour. 94% of microworkers are not involved in a worker association or a labour union, and therefore do not have the power to make their voices heard. The issue of a lack of benefits has to be put in perspective: « In developing countries, most workers do not have these benefits » (World Bank Report 2016).

Then, the oversupply of workers entails a **competition** between them in a giant labour market where an employer may choose the cheapest one. This situation creates a « race to the bottom » (Graham 2017a) towards low-paid labour and enhances the feeling of precariousness and employment insecurity – 43% of workers feel easily replaceable, (Graham 2017a).

[4] Some platforms have recently implemented a minimum salary policy.

Finally, microwork facilitates **opacity**. There is some uncertainty on the legal obligations of workers – 32% of workers are not sure if income tax is paid on their earnings and 34% do not pay income tax (Graham 2017a). Also, microwork enables intermediaries (workers with higher feedback scores who delegate work to other workers for smaller amounts of money).

Recent literature proposes some policy recommendations and some food for thought to leverage on microwork and how to make the best of microwork for socioeconomic development. We will come back to this in the policy section below.

Existing data on microwork in developing economies

In terms of existing indicators and data collected about online work in developing countries and particularly in Africa, some premises have been established.

At a macro level, the Oxford Internet Institute iLabour research project studies the social, organisational and policy impacts of the dramatic changes that the labour markets are currently experiencing. Part of the research project is the creation of the **Online Labour Index** (OLI), in order to have an equivalent of the statistical measurement of traditional labour (types of occupation, number of workers). It aggregates the utilisation of the six largest English-language work platforms (60% of the market in terms of traffic) over time (since mid-2016) and across countries.[5] For the time being, the OLI collects data in the following African countries: Morocco, Algeria, Tunisia, Egypt, Ghana, Nigeria, Cameroon, Kenya, Zimbabwe and South Africa.

On a more micro level, the most extensive study on microwork in developing countries has recently been published by Graham et al. (2017b). It has used a large research corpus: from one specific platform (microworkers.com); 125 interviews were undertaken between 2014 and 2016 in Southeast Asia (Philippines, Malaysia and Vietnam) and in sub-Saharan Africa (South Africa, Kenya and Nigeria); an online survey was conducted on 456 workers in 2016; and a 2013 dataset on 362 000 projects has been analysed. Galperin & Greppi (2017) also have based their analysis on data extracted from one platform (Nubelo). This methodology provides a partial picture on the demographics of workers, as each study

[5] More information on the OLI methodology is available at: http://ilabour.oii.ox.ac.uk/measuring-the-supply-of-digital-labour-how-the-oli-worker-supplement-is-constructed/

builds on data from one particular platform. This might result in fragmented research on microworkers that would prevent it from being comparable across marketplaces (workers might have different profiles depending on the platform). The present research uses a complementary method, as our sample of workers has been selected from field population using microwork through all types of platforms and applications.

Due to microwork's nascence, the literature on it is still underdeveloped. There is a lack of data on the profile of microworkers and the extent of microwork's practice in developing countries. This comparative study brings a complementary perspective to the existing literature on the subject and aims to lay the foundation for a longitudinal study on this topic, by collecting and analysing updated data on a regular basis.[6]

RESEARCH DESIGN AND SCOPE

Based on the desk study above, the main objective of the present analysis is firstly to assess the importance and main characteristics of microwork in some African countries (Rwanda, Tanzania, South Africa, Kenya, Mozambique, Ghana and Nigeria), and secondly to identify some new policy paths for developing countries to leverage microwork for development. This first set of data constitutes a baseline for future analyses and longitudinal studies to understand the evolution of the gig economy in these specific countries. Microwork is conceptualised for the purposes of this study as being work that is income-generating, low-skilled and not necessarily digital intensive.[7]

This paper will contribute to answering the following research question: How to make the gig economy efficient in African countries?

As discussed above, recent studies have demonstrated that the microwork phenomenon is not homogeneously efficient globally nor does it create a frictionless labour market, as often stated in common narratives.

In order to answer this general question, building on the existing research, the paper will proceed in two steps.

[6] In the framework of Households/Business ICT Country Studies by Research ICT Africa
[7] The value created not only comes from the manipulation of data online, but also from services ordered and transactions made through digital networks (cleaning, driving, and so on).

Firstly, a descriptive assessment of the data will be carried out to identify any patterns in the undertaking of microwork in the countries studied and answer the following questions:

- Is the demographic and user profile of microworkers consistent across countries?
- Is the demographic and user profile of microworkers in African countries consistent with literature findings in other developing markets (young, male, single, microwork as primary source of income)?

This research is based on a field experiment and draws on 139 interviews of workers conducted in 2017 in seven sub-Saharan countries (Ghana, Mozambique, Nigeria, Rwanda, Kenya, Tanzania and South Africa). It will highlight the demographic profile of microworkers, the type of tasks they carry out, the significance for them of microwork revenues and their motivation for using microwork. Workers are randomly selected among Internet users in poor populations, as part of a larger study on ICT usage by individuals and households.

Secondly, the discussion will propose some directions for future research and policy recommendations in attempting to answer the following questions:

- How can developing countries capture a larger share of the value of the global microwork market?
- According to literature and this research, most microworkers in developing countries are men. Could microwork be a lever for inclusion of women in the labour market, particularly because of its flexibility? Or does the evidence indicate that this simply adds another layer of exploitation?

Methodology

The study uses data from in-depth individual surveys which were conducted by Research ICT Africa in 2017 in the following seven countries: Ghana, Kenya, Mozambique, Nigeria, Rwanda, South Africa and Tanzania. The survey data includes individual-and-household-level information on fixed line, mobile phone and Internet access and use.

As a result of the data sampling process, a total of 9 163 respondents participated in the survey. Of the 9 163 respondents, only 139 of them are microworkers. Table 1 shows the number of individuals surveyed in each country and the share of males and urban areas

as part of the whole sample. Once the data is weighted to correct for over- or under-representativeness of rural/urban areas and age groups, there is evidence that the majority of the population in the countries surveyed in Africa are female, while most respondents reside in rural areas, except for Ghana and South Africa.

Table 1: Sample distribution

Country	Observation	Male (%)	Urban (%)
Ghana	1.200	48.49	55.31
Kenya	1.208	45.28	26.49
Mozambique	1.171	44.23	32.82
Nigeria	1.200	50.35	49.40
Rwanda	1.211	47.22	21.60
South Africa	1.815	45.12	64.50
Tanzania	1.200	46.74	33.02

Source: Research ICT Africa, After Access Survey, 2017

Notes: Table 1 presents the full sample of the survey conducted by Research ICT Africa among seven Africa countries in 2017.

Table 2 shows that mobile phone penetration in African countries is considerably lower than those provided by the ITU, which is older data, or even the GSMA, as a result of its measurement of SIMS as unique subscribers, which fails to account for duplicate SIMS, which are very prevalent in Africa. Nevertheless, the mobile phone industry continues to scale rapidly with more than 50% of the African population covered by mobile phone technologies. Migration to higher speed networks and smartphones continues apace, with mobile broadband connections set to reduce the historical digital divide created by high-cost fixed-line infrastructure. In four of the countries surveyed, more than 20% of respondents have used the Internet. However, in Mozambique (9.70%), Rwanda (8.74%) and Tanzania (13.62%), which constitute the poorest of the countries surveyed, the number of Internet users is below 20%.

As the vast majority of people in all seven countries access the Internet through their mobile phones, the low Internet penetration in these poorest countries can be attributed to low smartphone penetration which, except for Tanzania, is lower than 20%, compared to South Africa (55.53%), Ghana (34.27%), Kenya (27.57%) and Nigeria (23.00%).

Surprisingly, Tanzania's smartphone penetration is above 20%, but Internet penetration remains lower. This could be attributed to supply side issues such as data prices or the dearth of skills to enable Internet use.

Table 2: Individual use of ICTs

Country	Mobile phone (%)	Smartphone (%)	Internet use (%)	Microwork (%)
Ghana	73.87	34.27	27.93	0.99
Kenya	86.94	27.57	26.86	0.98
Mozambique	39.73	17.01	9.70	0.77
Nigeria	63.26	23.00	29.34	2.72
Rwanda	48.16	9.02	8.74	0.33
South Africa	83.84	55.53	53.14	3.22
Tanzania	58.52	22.12	13.62	0.08

Source: Research ICT Africa, Beyond Access Survey, 2017.
Notes: Table 2 presents ownership of mobile phones and the use of Internet and adoption of microwork. Column 5, Microwork (%) is the percentage of Internet users who are microwork users.

Given its strong growth and new innovative products, the global mobile industry is now a major source of employment opportunities. Mobile industry jobs can be classified as direct and indirect, with a diverse labour force supplying each category. Direct jobs are professional in nature and require some form of training and skills. They are created by mobile operators and manufacturers in professions that range from engineers to managers and sales support staff.

Indirect jobs, however, do not necessarily require IT expertise. Mobile operators, manufacturers and third-party content and device producers, including entrepreneurs, create these jobs. Indirect jobs are generally small in nature, providing employees with part-time employment. Indirect jobs (microwork) have shown potential for growth but, in most cases, are found to compete with traditional employment opportunities. For instance, Uber or Taxify are big competitors to the traditional taxi systems. For many individuals in developing countries, a mobile device is a tool used not only for contacting customers and accessing the Internet, but also as a platform that provides jobs such as driving for ride-applications, shopping for delivering household items, performing tasks online and providing cleaning services.

As shown in Figure 1, microwork penetration is very low when analysed using a full sample. This is mainly due to microwork being an online platform that can only be used by individuals who have access to the Internet. Internet penetration in the surveyed countries is very low. Among the surveyed countries, only two countries – Nigeria and South Africa – have reached the 30% Internet penetration level. This is a further explanation of why microwork has not yet reached its potential in Africa. Restricting the sample to respondents who stated that they have used the Internet in the past three months, the sample reduces to 2 793 respondents from all the countries. Focusing on the restricted sample, the results show that countries with high Internet penetration are more likely to have high levels of microwork participants than those with low Internet penetration. Table 3 shows that about 8% of Internet users in Nigeria and Mozambique participate in microwork activities, while in Figure 1, only 3% of Internet users in Nigeria and South Africa are microworkers.

Microwork is more common in Latin American countries than in African and Asian countries. While Internet penetration seems to track GNI per capita, this is not the case with microwork. Colombia has the highest proportion of microworkers (13%), which is higher than Argentina's proportion of microworkers (5%), despite Argentina having a higher GNI and higher Internet penetration. Microwork penetration in Guatemala and Peru, countries with a significantly lower GNI per capita, have a similar proportion of microworkers (5%) to Argentina. Tanzania and Rwanda, countries with the lowest Internet penetration, have very insignificant proportions of microworkers, less than 1%.

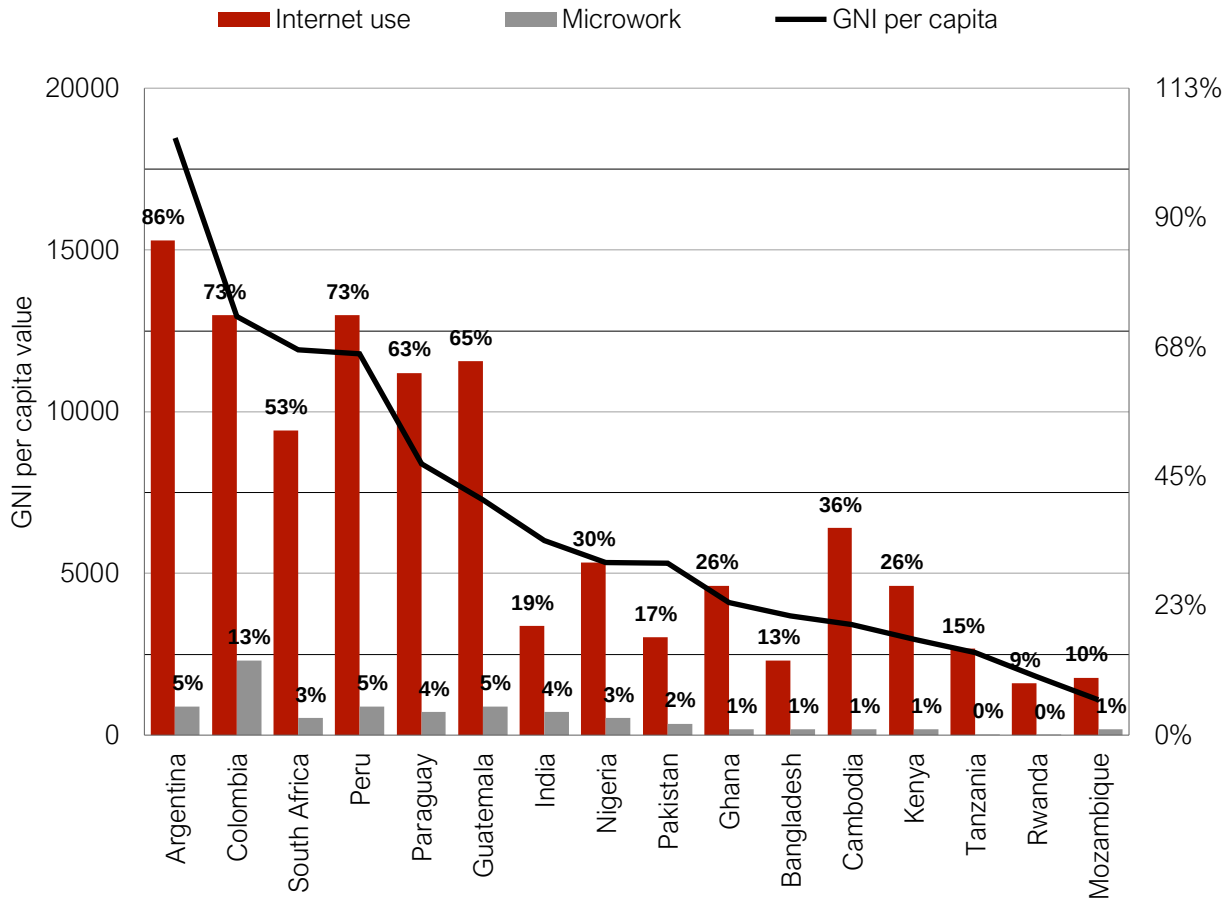

Figure 1: Mobile phone ownership, Internet use and GNI per capita

Source: Research ICT Africa, After Access Survey, 2017; World Bank, 2018

The survey shows that females are more likely to be microworkers than males in Kenya, Ghana, Nigeria and Tanzania. Despite an insignificant proportion (0.56%) of individuals who use online platforms to get jobs, the microwork gender gap in Tanzania is very high (–355%). In Nigeria, the microwork gender gap is at –63%. This is despite the two countries – Nigeria (46%) and Tanzania (32%) – having the highest Internet gap in favour of men in the surveyed countries.

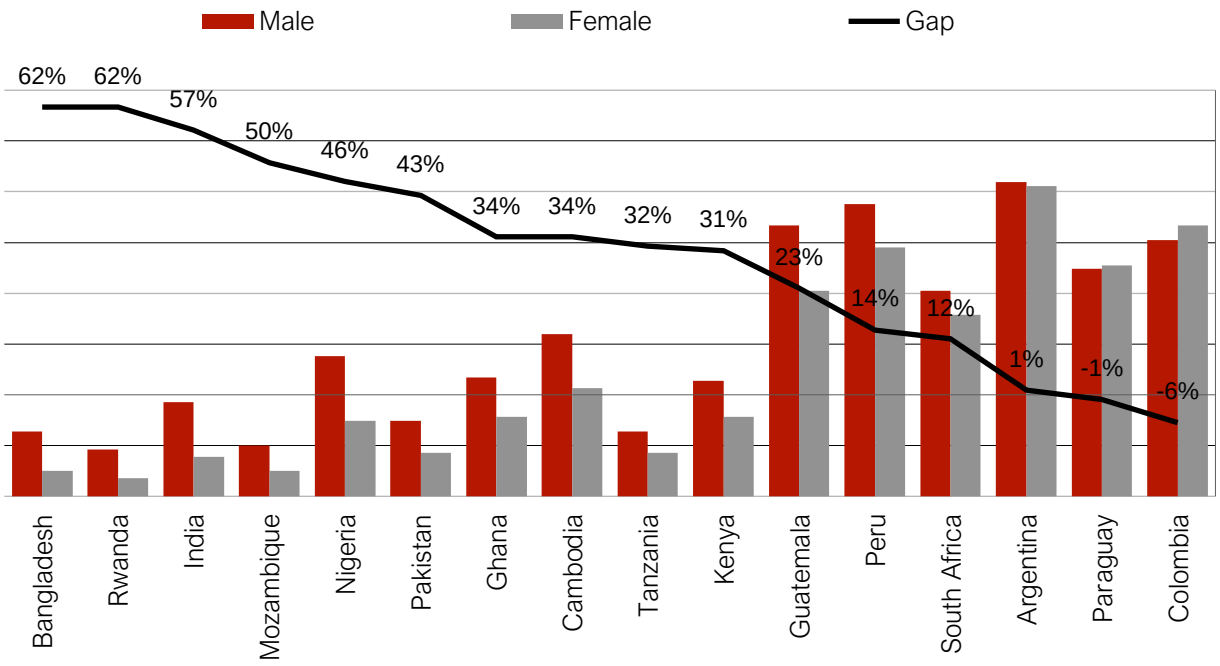

Figure 2: Gender gap in Internet use

Source: Research ICT Africa, After Access Survey, 2017

In Mozambique, Rwanda, and South Africa, the gender gap in microworkers follows the Internet gender gap. Mozambique, which is the second country with the highest Internet gender gap in Africa after Rwanda, has a significant microwork gender gap (69%) followed by Rwanda (37%).

Table 3: Number of observation in the restricted sample

Country	Microwork (%)	Male (%)	Female (%)	Gender gap (%)
Ghana	1.99	1.93	2.08	–7
Kenya	3.36	2.99	3.79	–26
Mozambique	7.90	10.81	3.34	69
Nigeria	7.63	6.26	10.21	–63
Rwanda	3.74	4.25	2.64	37
South Africa	6.48	7.45	5.56	25
Tanzania	0.56	0.22	1.00	–355

Source: Research ICT Africa, Beyond Access Survey, 2017.

Notes: Table 3 shows the number of observation in the restricted sample and the share of microwork and gender distribution.

Education is one of the main determinants of the digital divide. In order to benefit from digital technologies, one must know how to use them. This is evident from the survey results, which show that people with no education and a primary school certificate are less likely to participate in microwork jobs as compared to those with at least a secondary school certificate. However, it is important to note that these jobs pay low wages and therefore are not attractive to people with the skills or opportunities to undertake other better-paid work. This is also evidenced by the survey results, shown in Table 4, with no masters and PhD holders participating in microwork except in Nigeria where about 1% of microworkers have a master's degree.

Table 4 shows that majority of microworkers are secondary school certificate holders. About 65% of microworkers in Rwanda are secondary school certificate holders, and about 56% of microworkers in Ghana, as well as 50% in Kenya and Tanzania, have secondary school certificates. While a few bachelor's degree holders participate in microwork jobs in most of the countries, in Nigeria about 47% of microworkers are bachelor's degree holders. Of particular interest is that, in Ghana, only secondary school certificate holders and certificate or diploma holders participate in microwork jobs.

Generally, microwork is expected to benefit those who are left out of the traditional employment system and lessen the burden of unemployment. Furthermore, microwork is likely to be taken up by students as part-time jobs to supplement allowances. The survey results in Table 4 show that majority of microwork participants are students, and employed and self-employed individuals. The results show that microwork seems to be a major contributor to employment in Ghana, with about 60% of microworkers being unemployed. In Mozambique, about 24% of microwork participants are unemployed, while in Kenya and Rwanda only 16% are unemployed.

The results further show that microwork not only provides direct employment opportunities, but also has the potential for entrepreneurship. The results show that majority of microworkers are self-employed. More than 40% of microworkers in Kenya, Nigeria and Tanzania are self-employed. Only 4% of microworkers in Mozambique are self-employed, with majority (51%) being students. These results show the potential that microwork has in reducing unemployment in developing countries.

Table 4: Distribution of microwork participants by education and employment status

	Ghana	Kenya	Mozambique	Nigeria	Rwanda	South Africa	Tanzania
	EDUCATION						
Primary					16.37		22.03
Secondary	56.36	50.15		44.10	65.46		49.21
Certificate/ Diploma	43.64	49.06		7.45	8.63		
Bachelor's		0.79		47.39	9.54		28.75
Master's				1.06			
	EMPLOYMENT						
Student/ Pupil	12.18	18.07	51.30	7.99		16.71	28.75
Unemployed, active	59.79	16.26	24.57	13.66	16.37	15.17	
Employed	7.35	21.32	18.81	31.86	58.46	60.08	22.03
Self-employed	20.68	44.35	4.16	46.49	25.18	7.31	49.21

Source: Research ICT Africa, Beyond Access Survey, 2017

Notes: Table 4 presents demographical characteristics of microworkers in the surveyed countries. No education and PhD holders are not presented in the table since there were no microworkers in these groups for all the surveyed countries. On the employment status, unemployed discouraged, retired and disabled are also not presented.

Respondents were also asked to state the types of jobs or tasks that they have performed. The results show that most (26%) microworkers in Africa perform online tasks such as completion of online surveys or data entry, while 22% get their work cleaning someone's home or doing laundry services via the Internet. A few microworkers, about 10%, work on Internet platforms that enable them to do shopping for household delivery. The uptake of driving for a ride-hailing application is still low among the surveyed countries. Only 5% of microworkers drive for a ride-hailing app such as Uber, Lyft or Taxify.

Table 5: Percentage of microworkers across tasks

Tasks	Microworkers (%)
Driving for a ride-hailing app, Uber, Taxify	5%
Shopping for delivering household items	10%

Tasks	Microworkers (%)
Performing tasks online, completing surveys or doing data entry	26%
Cleaning someone house or doing laundry	22%
Other	16%

Source: Research ICT Africa, Beyond Access Survey, 2017

The results further show that the income earned from microwork jobs is essential to participants welfare, with only 15% stating that they can live comfortably without the microwork income. However, about 30% of microwork participants stated that there are instances where they participate in these platforms and never get paid.

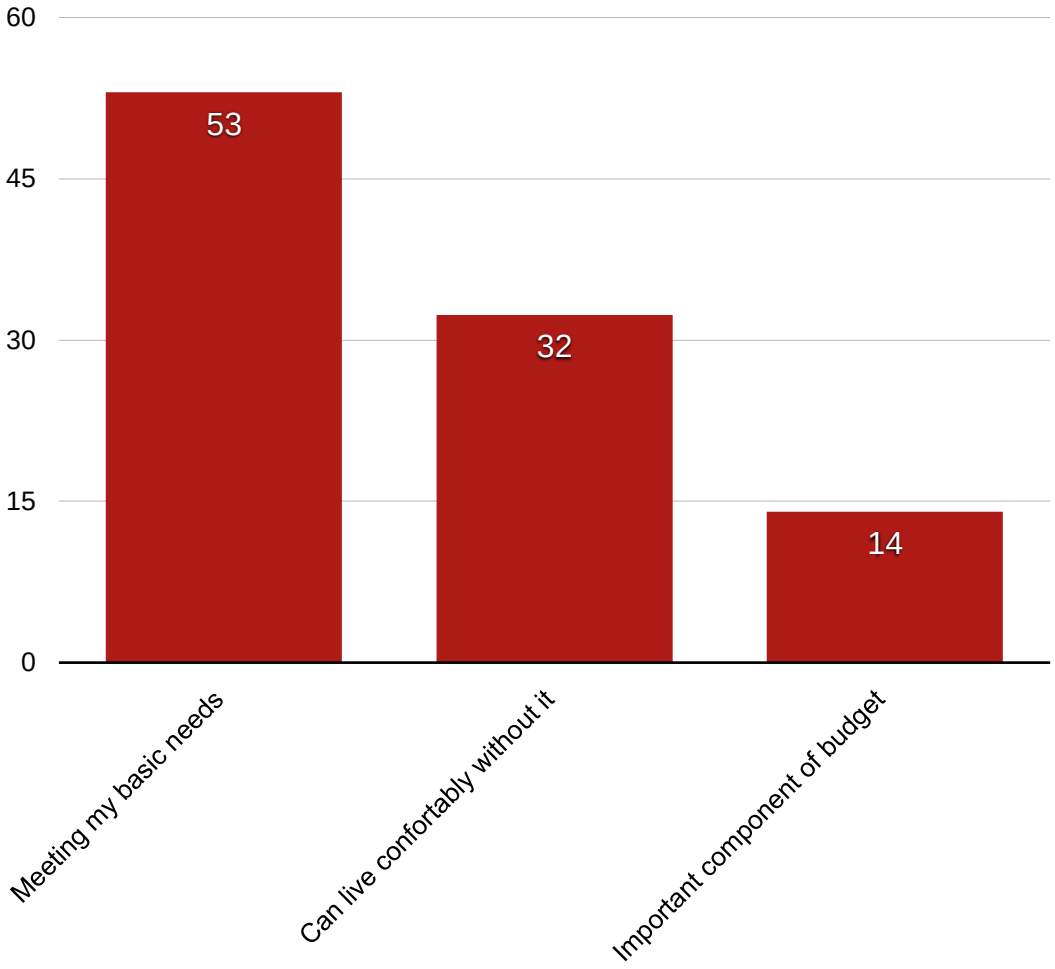

Figure 3: Importance of income earned from online services

Econometric modelling

The respondent's decision either to work on a microwork online platform or not is treated as a 0–1 variable, which is regressed on explanatory variables using a binomial logit model. We assume that an individual derives a linear utility from working on a microwork platform. The worker utility function is assumed to be positively related to the income derived from the platform and is given by:

$$u_i = X_i\beta + \alpha W_i + \varepsilon_i$$

Where X denotes the vector of household and individual characteristics such as: mobile phone ownership, gender, location, age, marital status, years of schooling, employment status and household ownership of telephone, refrigerator, radio, television, Internet and income. Due to the lack of income generated from the microwork platform, the study cannot assess the impact of wages on the take up of microwork.

Microwork applications are mostly driven by the uptake of mobile phone and Internet use. After controlling for household characteristics and country level fixed effects, we find that income and smartphone use have a positive effect on the uptake of Internet use. These results show that income is a significant driver of digital divide in Africa, with the wealthy people more likely to benefit from access to the Internet. This phenomenon shows that, rather than narrowing social inequalities, the Internet tends to perpetuate and strengthen the traditional existing social inequalities.

Focusing on understanding the drivers of microwork on the continent, the study suggests that outside of South Africa, where a significant number (though small in relation to total Internet users) are doing online profession and technical freelancing, wealthier people are less likely to work on online microwork platforms. This result supports the notion that these applications provide an opportunity for those who are at the bottom of the pyramid to generate their own income. This highlights the need for governments to enable citizens to acquire the capabilities to use these platforms to enhance their livelihoods. The study also finds that residents of developed countries are more likely to use the Internet than those who live in relatively poor countries. This outcome is attributed to developed countries' ability to roll out infrastructure, as well as having the skills base to respond to the demands of online employers.

Individuals with higher years of schooling are more likely to adopt a mobile phone, and use smartphones and the Internet. However, the coefficient on years of education on microwork estimation is positive and insignificant. Furthermore, the results show that

students who are mostly youth are the drivers of high ICT adoption in Africa. We find that students are more likely to adopt a mobile phone and use the Internet than the working group. However, the gap between the employed and students diminishes in the adoption of smartphone use and microwork. We also find that unemployed and retired or inactive people are more likely to have mobile phones than the working group, but their probability of owning a smartphone and using the Internet is lower than that of the employed.

Our study suggests that mobile phone and fixed line telephony are substitutable. We find that individuals who live in families with fixed lines are more likely to adopt a mobile phone. Furthermore, these individuals are more likely to own a smartphone, use the Internet and take advantage of online microwork platforms. Similarly, we find that individuals who live in households with a television set are more likely to own a mobile phone, use a smartphone, use the Internet and work in microwork applications, while those who live in households with a refrigerator are more likely to own a smartphone and use the Internet. Individuals living in households with a radio are more likely to adopt a mobile phone, but less likely to work online for microwork digital platforms. These results show that individuals living in wealthy households are more likely to own and use ICT devices.

We find a significant and positive relationship between smartphones and the Internet. Moreover, we find that the smartphone has a significant and positive impact on individuals' adoption of Internet and also increases individual probability to work in online microwork applications.

Table 6: Estimation results

	Phone	Smartphone	Internet	Microwork
Female	–0.24***	0.15	–0.51**	–0.40*
Urban	0.32***	0.30**	0.53***	0.63***
Years of schooling	0.14***	0.05***	0.20***	0.03
Unemployed	0.15***	–0.36**	-0.39***	–0.27
Inactive/retired	0.90***	–0.63**	-0.70***	–0.67
Internet	1.57***	3.10***		
Smartphone			3.11***	1.09***
Income	0.10**	0.16***	0.04*	–0.12**

Source: Research ICT Africa, Beyond Access Survey, 2017

*Notes: Household characteristics and country fixed effects are controlled for. *** p<0.01, ** p<0.05, *p<0.1*

OVERALL DISCUSSION AND POLICY RECOMMENDATIONS

Microwork has progressively made its way to developing countries in the past few years. Existing studies might give a partial view of what is really happening, as most of them focus on one platform and analyse workers' demographics on that platform, first trends on microwork and labour market frictions. This type of research based on interviews with hundreds or even thousands of microworkers can give an impression of strong uptake of microwork, despite it representing a very small contribution to individual incomes at the national level.

The 2017 After Access Survey shows that currently there is very little uptake of microwork in Africa. Only two percent of the population among the surveyed countries are microworkers. This is mainly due to low Internet penetration in these countries. Among the population of Internet users, only six per cent work on digital platforms or as microworkers.

This data on microwork that are being collected for the first time in Africa at a nationally representative level provides an important baseline for further studies. In Sri Lanka, for instance, freelancers are estimated at around 0.1% of the country's population, but the uptake is strong (growing at a rate of 44%).[8]

Several hypotheses might explain the low take off of microwork among the population in Africa: the lack of connectivity, the lack of awareness, and the lack of skills and opportunities for training to acquire them.[9]

A first possible structural barrier to microwork being able to make a significant contribution to job creation and poverty alleviation would be the low access of individuals to broadband services. On the one hand, this is the result of the **lack of broadband connectivity**, and on the other hand, this is because of **high data prices** in some countries, which make access to the Internet unaffordable to significant numbers of people in Africa, and not only

[8] LIRNAsia, 2017

[9] Willingness to work through online services is another factor, but is not possible to assess at this stage of the data collection. In Sri Lanka for instance, 11 percent of the population is willing to do microwork (LIRNAsia 2017).

the very poor. Improving connectivity and access to data services would be a necessary condition for microwork to contribute to economic inclusion.

However, it is not a sufficient condition. The largest and far more difficult challenge in Africa is the lack of education and training to **enhance basic ICT skills**, which are essential in order to make microwork a tool for gender and regional inclusion, and not an exploitative one. Without active steps by government to address these issues, enhanced opportunities for those with the means and capabilities to undertake microwork will in fact increase digital inequality and not contribute to social and economic inclusion.

This will also require the building of citizen awareness of the **existence, opportunities and risks of microwork**. Indeed, some platforms do not pay the same wages to workers from developed countries as they do to those from developing countries, who are paid considerably less. For this reason, it is vitally important to inform (potential) workers in developing countries of possible exploitation and to encourage them to use platforms with explicit non-discriminatory internal rules (minimum wage, and so on) and, where possible, to enforce compliance with local industrial policies and law.

According to the OII (2017), there are now over seven million digital ‘platform workers’ who live all over the world, doing work that is outsourced via platforms or apps in the 'gig economy'. Lacking the ability to collectively bargain, platform workers have little ability to negotiate wages and working conditions with their employers who are often on the other side of the world. The need for empirical research that focuses on these workers, their experiences, labour processes, and the organisation of their work to inform theoretical and hyped-up developmental models, which assume the abundance that has made this kind of distributed production possible in the Global North, in order to inform development strategies and governance frameworks in the Global South, is essential. As large global platforms go to scale, the platform economy is increasingly a reality in Africa – modified by its context as it may be – and has the potential to positively or negatively affect the future of work. African governments need to create the policy and regulatory conditions that will enable the investments required for the broadband infrastructure extension necessary for these platforms to ride and the gig economy to flourish. But this will require more than supply side strategies to leverage the benefits of labour mobility and job creation. Human development challenges that limit progress offline are simply amplified in the digital world, creating greater inequality between those with the education and skills to get online, not

only as consumers, but producers and workers. Governments will also have to mitigate the risks discussed above if the advent of online work in Africa is not be characterised by a fight to the bottom in terms of worker's incomes and rights. As the platforms can simply withdraw to environments more favourable to their business, governments should rather focus on creating enabling environments for platforms and online workers, as well as supporting the entry of more progressive platforms into their jurisdictions, ensuring they make contributions from their profits to the social investments of the state to build the capacity of its online workforce. Currently, how this is best done is not fully understood. Existing political and regulative frameworks lack the appropriate methods and conceptual approaches to ensure positive developmental outcomes. This paper offers a contribution to this growing but largely unknown development by providing demand side insights into what is happening in a number of different African countries that are a likely selection of what is happening, or not happening, across the continent.

ISSUES TO INVESTIGATE IN FUTURE RESEARCH

This very early attempt to understand the dynamics of microwork in Africa highlights probably more questions than answers. This work may be able to contribute to empirical studies on the flow of value, who creates it, who captures it and the impact that it has on local economies and communities (Graham 2017a).

Following the World Bank call for further research (Kuek et al. 2015), additional research is needed to understand the microworker profile across platforms, with a possible extension on workers demographics for the ILO.

Most importantly, further research is required to create governance frameworks that will create the trusted environments required for widespread use of the Internet, including digital rights frameworks, as well as labour and taxation regimes to prevent the exploitation of African resources without some contribution to their sustainability, while ensuring that these are flexible and adaptive to the changing Internet environment and to the complementary function global platforms can play in the area of stimulating Internet take up and innovation.

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