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MetLife Foundation

MEASURING THE FINANCIAL HEALTH OF GIG WORKERS IN CHINA

CHARGE Project Briefing Note #1

Aug 2021

CONTENTS

ACKNOWLEDGMENTS

This CHARGE Briefing Note #1 was written by a joint team comprising Dr. Xiugen Mo and Dr. Peng Deng of CAFI, and Dr. David Porteous, Dr. Ashirul Amin and Coco Dong of BFA Global.

This Briefing Note is the first to come out of the CHARGE Project, a 30-month project supported by Give2Asia and the Metlife Foundation which aims to improve the financial health of 200,000 people in vulnerable groups in China. We are grateful for their support, especially that of Krishna Thacker, Director – Asia Region, and Evelyn Stark, formerly AVP Financial Health for MetLife Foundation. The first phase of the project identified the role of aggregators in China in promoting inclusion, resulting in a joint publication available in English here and in Chinese here.

A draft of the paper was first discussed at a Project Advisory Group attended by Elisabeth Rhyne (formerly CFI), Dandan Wang (Accion), Thea Garon (FHN), Prof. Gan Li (China Southwestern University) and Jaspreet Singh (UNCDF). The Advisors gave valuable comments on the paper, for which we are grateful. All errors and omissions in this version remain the responsibility of the authors.

Beijing and Boston
Aug 31, 2021

MetLife Foundation funds research and thought leadership in the spirit of generating dialogue on important societal topics. The opinions expressed in this report are those of BFA Global and CAFI and do not necessarily represent those of MetLife Foundation.

EXECUTIVE SUMMARY

This first Briefing Note of the CHARGE project proposes a framework to measure **financial health** (FH) for a particular segment of the population in China: delivery riders, who are part of the larger segment of gig workers.

To recap, financial health is an organizing principle that allows us to characterize financial wellbeing for an individual or household. This concept of FH enables us to systematically extend the conversation around financial inclusion, a conversation which primarily involves access and usage, to one that also focuses on efficacy of that access. FH can be seen as consisting of four interlocking dimensions: day-to-day management, taking advantage of future opportunities, resilience to shock, and agency over one's financial life (DORA) (Section 2).

The attention on the financial health of delivery drivers, and gig workers in general, is timely given their role in providing primary and secondary sources of livelihood during the COVID-19 pandemic, and after. The Chinese government mandated support to "new forms of employment" in mid-2020 to cater specifically to flexible employment models linked to internet platforms. The term "flexible employment", translated directly from Chinese (灵活就业), lacks a formal definition and can best be understood by what it is not, namely not formal employment (Section 3.1). Variable working times, fluctuating workloads and consequently incomes, and no mandatory employer sponsored benefits can lead to large divergences in gig workers' financial health.

These overall trends are supplemented by research undertaken by CAFI in late 2019. CAFI's research found that gig workers are predominantly: young males with lower education levels, migrant workers, the main income source of the family, have volatile income, and don't see gig work as a long-term career. In follow-up research, CAFI also found that delivery riders already use internet finance services, are starting to pay attention to their credit history, do not use much commercial insurance, accumulate fewer assets than those at comparable income levels with formal employment, and are price sensitive.

Armed with this understanding, a survey (N=501) was conducted with delivery riders in China during 2020, based on which this paper proposes a modified measure called "Financial Health+". This builds on the internationally recognized core concepts of financial health, which is then modified to fit the context of gig workers and China. Based on confirmatory factor analysis techniques, this FH+ measure presents four dimensions: Day-to-day management, Resilience, Agency, and Capability (DRAC), which are measured using the ten questions presented in this paper. DRAC is a modified version of the widely accepted DORA framework, which will be outlined in Section 2. For the survey, the individual, and not the household, is chosen as the unit of analysis.

We end this paper by briefly sharing the implementation plan for an app that will measure the digital health of gig workers, including delivery riders, at scale. The app will be developed by CAFI with technical assistance from BFA Global, and deployed in partnership with an appropriate internet platform. The FH+ framework presented here will be at the core of the measurement exercise. We plan for the app to increase awareness around the financial health and wellbeing of its end users as well as for any advice it provides to be useful to individuals as they improve their financial circumstances. Eventually, we expect the app to connect its users to the appropriate financial products and services.

02

INTRODUCTION

Financial health is increasingly recognized as a useful way to think of the outcomes arising from the use, disuse, or nonuse of financial services. The concept has gained significant popularity in recent years in both developed and emerging markets, especially in circumstances where there are high levels of access to, and usage of, financial services, yet the outcomes in terms of well-being are mixed or even sometimes disappointing.

The concept of financial health has intuitive appeal as a counterpart to physical health. The measurement of physical health's essential facets has become universally accepted and applied using a well defined set of vital signs, such as body temperature and blood pressure, with well-known normal ranges. Additionally, physical health has commonly accepted behaviors that promote better health, such as regular exercise, a balanced diet, and sufficient sleep.

The authors and sponsors of this paper – CAFI, BFA Global, and the Metlife Foundation – and other proponents of the concept see "financial health" as providing similar utility when it comes to actualizing financial well-being.

This paper seeks to propose a way of measuring financial health for a particular segment of the population in China: delivery riders, who are part of the larger segment of gig workers. This turns out to be a priority segment for a number of reasons: it is already large and still growing in China and indeed elsewhere; and the vulnerabilities of people who work in this sector have been shown during the global pandemic. This led the Chinese government, which has traditionally ignored the segment which fell outside of formal employment definitions, in 2020 to seek to improve outcomes for the wider group of workers of which delivery riders are a part. This official endeavor places the spotlight on their financial health as the basis of asking what can be done through policy, law, or new financial services, to improve the wellbeing outcomes. This paper is therefore a contribution to the growing literature which seeks to develop and apply financial health measures to different segments in countries around the world, in order to consider how best to improve financial health.

Based on extensive interviews and testing with delivery riders in China throughout 2020, this paper proposes a modified measure called "Financial Health+," which builds on internationally recognized core concepts of financial health and is modified to fit the context of gig workers and China.

Section 2, the start of the paper, is for those unfamiliar with financial health, as it describes the concept and its building blocks. Then, in Section 3, we consider the Chinese context of 'flexible employment' to define the characteristics of the target group, and summarize what has been learned about it so far from surveys, some already published, and others undertaken as a part of the research of this project. In Section 4, using these defined characteristics and learnings, we propose a new "Financial Health+" measure and describe the methodology behind its apt and accurate measures of financial health. Finally, in Section 5, we discuss the issues around applying this measure in practice.

02

THE CONCEPT OF FINANCIAL HEALTH

Financial activities provide a key set of means to build a better quality of life. The common indicators of a better quality of life, such as sufficient nutrition, good health, adequate education, or suitable housing, apply to everyone. Yet, they often remain out of reach for low-income individuals and communities in developing countries because of the "triple whammy" of low, unpredictable, and volatile income that often fails to keep up with expenses (Collins et al, 2010). However, if a person is able to manage their daily finances, provide for the future, and do so with sufficient agency, he or she can reasonably expect to have a higher quality of life in time (Collins, Larson, & Butkus, 2019).

Financial health is an organizing principle that allows us to characterize individual or household financial wellbeing.

> Financial health enables us to systematically extend the conversation around financial inclusion that primarily involves access and usage, to one that focuses on efficacy of that access.

The scope of this discussion is global, applying as much to the 1.2 billion adults who first obtained access to savings, credit, insurance, or payments solutions at the last mile between 2011 and 2017, as it does to the 1.7 billion who were still unbanked in 2017 (The World Bank 2020).

The original framework was developed by pioneers in the field of financial health, including the US based Financial Health Network (FHN), Center for Financial Inclusion (CFI) at Accion, the Consumer Financial Protection Bureau (CFPB), Innovations for Poverty Action (IPA), Financial Sector Deepening – Kenya (FSDK), and the Metlife Foundation (FHN 2019, Ehyne 2018, CFPB 2015, Hougaard et al 2019, Moore et al 2019, Gutman et al 2015, Finaccess 2019). It has undergone constant refinement based on learnings from implementations with partners across the globe, and ongoing discussions in the industry.

The generally accepted framework seeing widespread international use consists of four dimensions or 'building blocks':

- **Day-to-day management:** Alignment of expected incomes to expenses
- **Opportunities**: Building of a meaningful lump-sum for anticipated future expenses
- **Resilience**: Availability of meaningful reserve(s) as a hedge against shocks
- **Agency:** Retaining control while interacting with financial service providers

Or DORA, for short. We shall now present brief descriptions for each of the dimensions.

We start with **day-to-day management (D)**. This dimension focuses on whether an individual is able to meet expenses within an income cycle. We display its elements in Figure 1 below. While most expenses tend to occur at anticipated intervals, as noted earlier, there is more uncertainty around the timing and amount of income, especially for low income and flexibly employed people. This implies that even if total income matches expenditure within a given period of time, there may be periods within that window where expenses outstrip income, often in an unpredictable manner. This, in turn, can make paying bills and debt obligations *in full* and *on time* difficult. Budgeting is also challenging in this situation, requiring not just a plan to allocate money over a period of time, but provisioning for bridge financing to see through temporary shortfalls. However, successfully managing day-to-day finances drives improved financial health by allowing one to generate excess income in a planned manner.

Figure 1: The elements of "day-to-day financial management

A better quality of life results from incremental improvement over time, making it the future-oriented dimension of financial health. Its elements are shown in Figure 2 below. This requires one to provision adequately for life **goals**, and to take advantage of **opportunities (O)**. This can take the form of financing specific life goals, such as sending children to school or building a house. This can also take the form of engaging in entrepreneurial activity, to start a new business, or expand an existing one. And sometimes, it is about preserving wealth, often with retirement in mind. Finally, the discipline required to build up a meaningful lump sum for planned usage in the future is not possible without effective long-term planning, making it an integral component of this dimension of financial health.

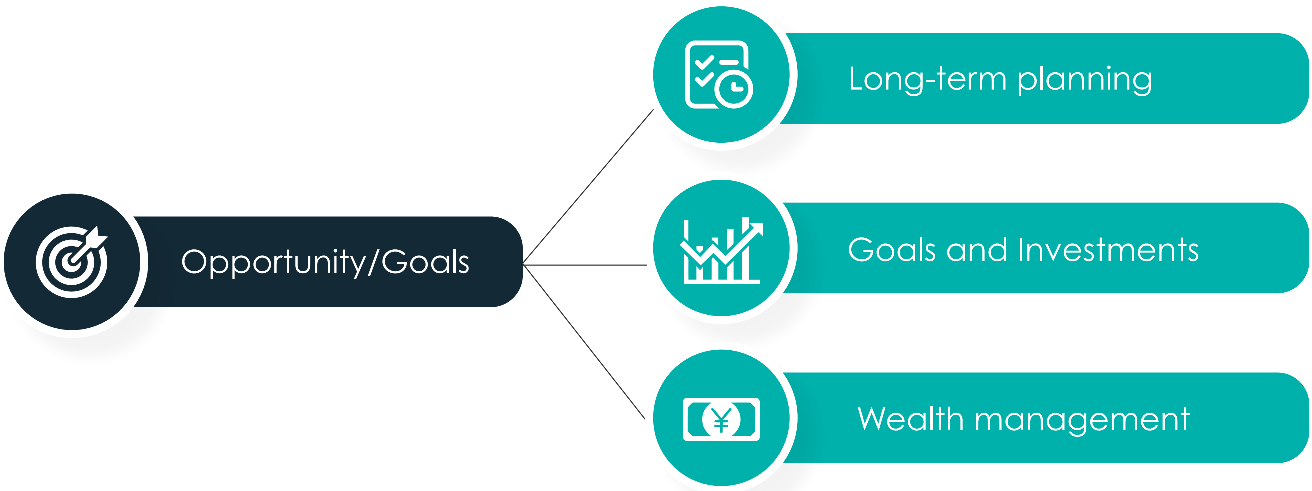

Figure 2: The elements of "opportunities"

As difficult as finding and staying on the path to upward socio-economic mobility is for low income individuals, it is worse when unanticipated shocks, such as an illness, erases gains made over multiple years. These shocks can lead to a poverty trap. Consequently, it is extremely important to build **resilience (R)** against financial shocks, so that they may weather adversity without suffering debilitating damage. In its simplest form, resilience comes in the form of sufficient cash and relatively liquid assets that allows one to effectively mitigate the immediate financial effects of a shock, whether lower income and/or higher expenditure. What's more, it is also important to notice that resilience includes the ability to access external funds or credit in the case of emergency. One's social network of friends and family often form the first line of defense when one's own cash runs out, followed by sources of rapid credit, such as moneylenders and some MFIs. How well one has prepared for such shocks by diversifying and deepening personal safety nets affects the length of time needed to recover to pre-shock levels.

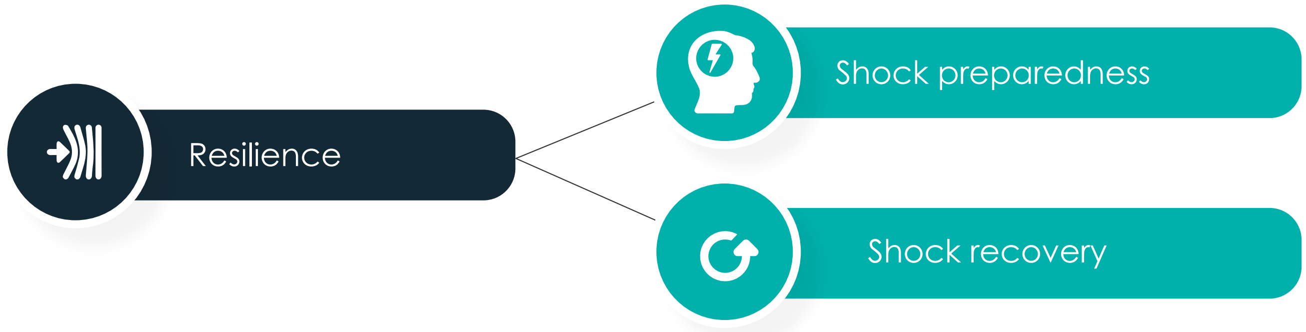

Figure 3: The elements of "resilience"

Finally, let us consider the dimension of **agency (A)**, the ability to make choices, given one's financial situation. This dimension has also been referred to as "control." As per the notion of "development as freedom" à la Amartya Sen, the best way to make financial markets work for everyone is to offer a suite of choices, along with the information necessary to make the choice that is most appropriate for them (Sen, 2000). This involves some combination of knowing enough to manage one's finances, having some amount of control when interacting with financial service providers, confidence in one's ability to overcome financial challenges, and self-discipline to engage in behavior that improves financial health.

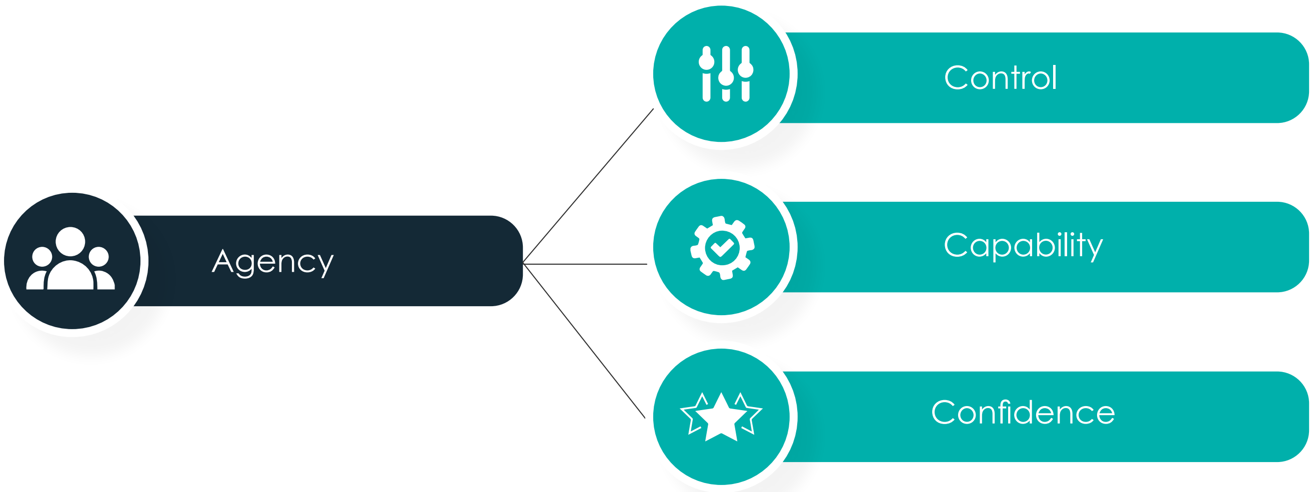

Figure 4: The elements of "agency"

While there is general agreement on what constitutes financial health, there is a greater diversity on how to measure within or across these dimensions. Given the breadth of topics covered by this concept, it is easy to create a 'laundry list' of questions or metrics in the attempt to cover all the sub-topics. Narrowing down this list to a smaller, core subset that extracts useful information without inducing response fatigue often means deferring to subsets crafted by experts. As the perspectives of experts vary, so do the core questions in the applied subset.

Another challenge is the context within which this concept is applied. In China, financial health is regarded as more of an objective concept. It therefore follows that it should therefore incorporate objective indicators, such as absolute levels of income or debt, rather than measures that cater more to perceptions of income sufficiency or indebtedness, as tends to be the case in the primarily English-speaking discussions. The challenge is compounded when one seeks to consolidate measurement into a single financial health index, as the constituents of that index can be widely varied. We address both these issues later in this paper.

03

INTERNET-BASED GIG WORKERS IN CHINA

— 3.1

Flexible workers in China

Up until 2020, 'gig workers' were not given much attention in mainstream labor policy in China. National statistics and labor agencies did not even count gig workers in the statistical system. The economic downturn as a result of the COVID-19 pandemic and the key role of the gig economy in maintaining livelihoods changed the government's approach (Dong 2020). In July 2020, the State Council Office issued a requirement for the government at all levels to take measures to support "new forms of employment" (Council 2020). This includes e-commerce, mobile travel, online education and training, internet health care, the online entertainment industry, telecommuting, and other flexible employment models linked to internet platforms.

The term "flexible employment" is key here, which is translated directly from Chinese (灵活就业). It lacks formal definition in Chinese too, and can best be understood by what it is not, namely not formal employment. Formal employment is a well-defined legal and policy concept in China: it requires labor contracts with workers and mandatory employer-sponsored benefits. Formal employment gives workers a well-defined employment relationship, with fixed working hours, fixed contracts, and agreed monthly wages. All other forms of employment, including self-employment, are classified as flexible employment.

According to the document released by the State Council, there are three main categories of flexible employment: the self-employed business; the part-time employment; and new forms of employment, including the employment opportunities in e-commerce, location-based ride hailing, and online education, which were all created by internet platforms. Flexible employment is associated with variable working times, fluctuating workloads and consequently incomes, and with no mandatory employer sponsored benefits.

There are generally two types of employment contracts in China: one is a labor contract as mentioned above, and the other is a labor service contract. The labor contract is used in a full-time employment relationship, and the relationship is covered by labor law; and the labor service contract is used in a flexible employment relationship, and regulated by civil law. For employees who have signed the labor contract, the employer needs to pay the five social insurances and one housing provident fund for the employees. In contrast, employers do not need to pay the social security for the labor service contract employees.

Using these definitions, the total labor force in the country was 776 million people, of which 301 million employees paid social security, according to the National Statistical Yearbook published in 2018.

The remaining 475 million individuals would be considered as engaging in flexible employment. Of course, by its very nature, some full-time formal workers also participate in flexible employment on the side to boost their incomes. CAFI and the fintech department of Foxconn, Fu Jin Fu, found that 45 percent of blue-collar workers in manufacturing have a second income source, for which internet-based gig work is one of the most common categories.

It is likely that this overlap has only increased because of the pandemic.

— 3.2

Flexible workers in China

In China, as elsewhere, internet work platforms have created new employment opportunities and new employment-like relationships. Though difficult to measure precisely, the latest Annual Report on the Development of China's Sharing Economy reports that 78 million individuals were linked to internet platforms, of whom only 6.2 million were directly hired by the platforms with formal employment relationships (RCSE 2020). The remaining 72 million do not have mandatory employer-sponsored benefits such as medical, pension, housing provident, and other insurance. In comparison, four years earlier, in 2015, only 50 million people generated an income from internet platforms, implying an average annual growth rate of about 12%.

Internet work platforms have changed the nature of work, including flexible relationships, breaking work into micro tasks, flexible working methods, and internet-based entrepreneurial opportunities. This helps workers balance economic activities with social and cultural ones, especially around family care, children's education, and caring for the elderly.

According to the study by ILO, internet platforms in China have three main labor engagement business models: self-operation aided by platforms, franchised cooperation through platform, and sharing model via crowdsourcing (Table 1).

Model	Characteristics	Form of employment	Labor relationship with the platform
Self-operation aided by platform	B2C	Self-operation aided by platform	Yes
Franchised cooperation through platform	B2B2C	Labor service contract or labor contract with franchisees	No
Sharing model via crowdsourcing	C2C, B2C	Mostly labor service contract	Generally

Table 1. Three main labor engagement models for internet platforms in China (Zhou 2020)

The first model seldom in use, as it requires platforms to pay the social insurance contributions amounting to about RMB 1,600 - 2,000 for each worker (Wang 和 Wei 2019). The second model tends to attract and onboard third-party micro- and small enterprises (MSEs) which were already in the business, and is popular with household service providers. The third model is the most common, allowing platforms to use new technology to integrate and mobilize labor. In China, the top-tier platforms, especially the ride-hailing and food-delivery ones, adopt features from all three business models depending on which serves their interests best, and reduces costs the most.

3.3

Special segment of flexible employment - delivery riders

Delivery riders belong to a particularly prominent sub-segment of flexible employees. In 2019, the large internet platform Meituan Dianping had almost 4 million delivery riders registered on its platform providing services and receiving revenue. In order to understand the basic work and financial situation of delivery riders, CAFI undertook focus group research involving 51 Meituan delivery riders from December 23 to 27 in 2019 in Beijing. UNCDF has also published research on a sample of gig workers including delivery riders in 2020 (UNCDF 2020). We share the results from this survey in some detail as this is the population segment whose financial health we are interested in.

Migrant workers

Migrant workers come from remote areas, have low levels of education, have fewer decent housing options in the city, and they are not included in the city's social security system. The internet platforms offer low barriers to entry for rural youth who are unfamiliar with the city. Meituan Research Institution found that in 2018, 58% of the delivery riders were from a non-local, rural area (MRI 2018).

Mainly young males with lower education level

CAFI conducted an intercept survey at one of the "delivery stations," which is a local assembly point for Meituan. 50 out of the 51 delivery riders interviewed by CAFI were male. This proportion is lower than the 10% of riders who are female, according to Meituan's internal data from 2018. heir ages ranged between 22 and 48. Since higher education is not required for the work, junior high school and secondary vocational graduates accounted for more than 60%. These proportions are in line with a large-scale survey of 5,279 delivery workers: 89% of the delivery riders are male, and they are mainly young people (49% between 20 and 29 years old, 41% between 30 and 39 years old, and 7.4% over 40 years old). Their educational level is low (29% junior high school and below, 47% high school vocational school and technical secondary school, 16% college, and 6% bachelor's degree and above) (CASS 2019).

This demographic profile is explained by the nature of delivery work, which can be physically demanding as riders fight traffic and sub-optimal road conditions to deliver food in a timely manner.
Migrant

Main income source for their family

55% of the delivery riders CAFI interviewed are married, and are often supporting spouses and children in rural areas. Even if they are not married, they bear the responsibility to support family members. 39% of the interviewed riders are the main income source of the family.

89%

of the delivery riders are male, and they are mainly young people

Volatile income

Monthly income for interviewed delivery riders were between RMB 5,000 (US$ 770) and RMB 9,000 (US$ 1,384). The average income of RMB 7,000 (US$1,076) is about the same as the average monthly income of individuals working in the private sector in Beijing. which is RMB 7,105. The averages belie a couple of additional challenges delivery riders face. This income is earned over a longer number of hours, there is much more uncertainty as income is commission-based without a base amount, and riders have to cover expenses the platforms expect them to bear. And 22% of riders finance the purchase of their vehicles through debt. All of these factors contribute to volatility around income and resulting uncertainty.

Not a long-term career

Most delivery riders do not see their job as a long-term vocation. 39% of the respondents said they would like to return to their hometown to start a business. They attribute various reasons to this, including poor children's education for migrant workers, most of their family still being in the rural areas, and medical insurance being tied to the rural system, requiring a return to their place of origin to be covered in full. Interestingly, the interviewed delivery riders saw internet platforms as a motivator for their return as these platforms offer other employment opportunities, especially in e-commerce, which would allow them to balance family obligations with income generation from locations closer to home.

— 3.4

Financial needs and services of gig workers

Having relatively volatile incomes means that workers will face difficulties consistently saving for the future as well as meeting their living expenses at least some of the time. Having few support systems and being outside of their insurance service areas also increases their susceptibility to shocks. Furthermore, a lack of suitable financial products robs gig workers of their agency over their finances. In other words, **the financial health of delivery riders is often in a precarious state**. CAFI conducted several rounds of focus groups in Q1 2020 into these issues and gathered the following thematic insights:

Delivery riders already use internet finance services

Most delivery workers already use different financial services in their daily financial management. Younger people are able to take advantage of internet-based services that are fast and convenient, and refer these services to each other more often. Compared to full-time workers, more gig workers will take loans from digital financial service providers (FSPs). This is because digital FSPs require less paperwork and offer flexible loan amounts and repayment terms compared to traditional ones.

They are starting to pay attention to their credit history

The importance of maintaining a decent credit history has dawned on gig workers as more of them use fintech products. Most respondents attributed late payments to not paying attention to due dates or repayment schedules, and not a lack of funds. Those with negative records noted they would find ways to improve their credit score in the future.

They do not use commercial insurance

Migrant gig workers are usually enrolled in the public, rural social insurance program. They generally do not purchase commercial insurance, and because the platforms do not cover any insurance, gig workers are often left without any additional cover.

They accumulate fewer assets

Gig workers have lower levels of savings and assets compared to the national average. When sufficient savings are accumulated, that money is often sent home to their family. Sometimes, the funds are used for asset-building, such as constructing a house. The collective ownership of rural land means that they have no inalienable title to this asset, only the right to use it. This limits their asset-accumulation potential.

They are price sensitive

We found that gig workers are sensitive to the price of financial services. This is related to their pursuit of quality goods and services to the extent allowed by their lower income. Gig workers will often shop around and find cost-effective products, and enjoy doing so.

04

MEASURING THE FINANCIAL HEALTH OF GIG WORKERS

— 4.1

Challenges in measuring financial health of gig workers

Gig workers present a population with particular challenges for measuring their financial health. First, gig workers are a relatively young population and they pursue a relatively wide range of activities across platforms. This means that it is difficult to obtain comprehensive objective data on their earnings.

Second, we must consider the mutual interaction of individual and household. In Chinese culture, the boundary between family and individual is often difficult to define. For example, a delivery rider from rural area may have parents living in his hometown. Part of his income is sent to support them. But conversely, if he has major funding needs, his parents may also help him out. Hence the relevant unit of analysis requires careful consideration.

Third, the high mobility of the gig workers increases the difficulty of field research over time. Based on the focus group surveys, delivery riders stay on the job an average of 16 months. How to follow workers long enough to track changes in their financial health is a key challenge.

Fourth, the literacy level of internet-based gig workers is relatively low making survey implementation through conventional means difficult. This requires the use of carefully designed research methodologies. These research methodologies allow us to gain insights through some combination of online or app-based surveys, and face-to-face ones. Finally, we have to consider whether the financial health of gig workers in China can best be measured using qualitative data, as is now common elsewhere, or whether China's particular circumstances would allow quantitative data to be collected in addition to, or in place of, the qualitative information.

4.2

Outline of experiment

We set up an experiment to test for two things:

Whether quantitative measures of financial health (FH) could replace qualitative measures; and

Whether the individual or the household is the appropriate unit of analysis for financial health

Ideally, we would want to use quantitative questions because they are more precise. However, real world applications of quantitative measures pose certain challenges:

- Recall can be notoriously difficult if a measure is not something one tracks regularly as a matter of course
  - We have found large divergences in recalled amounts versus actuals, when such comparisons were possible
  - It is one of the reasons Financial Diaries (a research method to get the daily financial transaction data from the respondents by face-to-face interviews periodically) discards the first 2-3 interviews altogether, as the basic numbers individuals recall initially are typically quite off the mark
- Many quantitative questions are needed to arrive at a conclusion that one may know the answer to intuitively
- All else being equal, survey fatigue tends to set in sooner with quantitative surveys versus qualitative ones, when one has to work through numbers as opposed to being asked for opinions or judgments
- Some concepts may not have a quantitative counterpart

Because of these reasons, as well as the demonstrated utility of qualitative measures in understanding the financial health of low-income individuals, the sector has essentially resorted in the recent past to using qualitative measures only.

Nevertheless, the CHARGE2 project faces a rather unique situation, where it may be possible to weed out many of the challenges with quantitative surveys by virtue of the interactions being digital, and because the target population - delivery drivers - may have a much better hold of their finances than the average individual. We therefore add a set of quantitative questions as either potentially complementary, or supplementary, to achieve a more precise measurement of financial health. This experiment compared the efficacy of adding these quantitative questions.

Box A: Qualitative statements to survey respondents:

1. When I think about the money I need during a typical day, I usually have enough to cover my basic needs (e.g., food, transportation, incidentals) for that day.
2. I have a (budget / spending plan / mental map of incomes that line up with expenses) that I use to guide monthly spending.
3. Currently, I am regularly putting aside money to buy assets, such as land, house, a vehicle, TV, refrigerator, etc.
4. Currently, I am regularly putting aside money to meet large, irregular expenses, such as an emergency.
5. My debt is manageable - I am able to pay off what I owe when it is due.
6. I owe more than what all my assets are worth.
7. If I lost all my income and had to survive on what I have put aside or assistance I can ask for, I would be able to pay for basic needs, such as food, housing and transportation, for four weeks.
8. In the last year, there has been at least one time when I went without medicine or medical treatment because I did not have the money for it.
9. I have a large degree of control over my current financial situation, and expect to have the same in the future.

Box B: Quantitative questions tested:

1. For the past three months, your household monthly after-tax income is ( ) RMB? (referring to the household monthly after-tax income earned by all family members who share income and disbursements)
2. For the past three months, your household monthly fixed expenses is ( ) RMB? (referring to rigid items that need to be set aside in advance, such as food, clothing, rent or mortgage, children's education, supporting the elderly, communications, etc.), occupied ( )% of total household monthly expense?
3. At present, the total amount of insurance paid annually is ( ) RMB? (excluded investment-oriented insurance)
4. Your current household assets status (assessed at market value):

   The value of housing asset is ( ) RMB;
   The value of vehicles asset is ( ) RMB;
   The value of financial asset is ( ) RMB;
   The value of the other asset is ( ) RMB,
   (Please note that financial assets include deposits, financial products provided by banks or digital financial platforms, such as Alipay and WMPC, stocks, funds and trusts, etc. which are liquidity.
5. For the past three months, how did you arrange your net assets? (The net assets is equal to total assets minus total liabilities)

   The bank deposits occupied ( ) %;
   All kinds of insurance occupied ( )% (including social insurance, commercial insurance)
   Low-risk investments occupied ( )% (such as monetary funds, financial products, bonds, etc.)
   Medium risk investments occupied ( )% (such as medium risk funds, corporate bonds, etc.)
   High risk investments occupied ( )% (such as stocks, stock funds, foreign exchange, financial futures, etc.)
   Other arrangements occupied ( )%.
6. At present, your total household debts are ( ) RMB? (including various loans, such as mortgage, car loan, consumer loans, etc.
7. If your household members do not have any income, and you can't borrow money, sell assets, or use your pension, (how many) months of total expenditure can be maintained by your household emergency savings?
8. In case of an emergency need of funds, (how many) months of total expenditure can be maintained by your temporary borrowing?

Also, asked for the following ratios or numbers in order to get the qualitative measurement of financial health:

1. What is your ratio of total monthly expenditure to monthly income?
2. What is the ratio of total monthly expenditure to household liquid assets?
3. What is the ratio of monthly debt expenditure to household liquid assets?
4. In the absence of any income, no borrowing, no assets to sell, and no use of pension funds, how many months of total expenditures can be maintained by the family emergency savings?
5. How many months of total expenditure can be maintained by the funds obtained by the family's temporary loan?
6. What is the ratio of the total cost of family insurance to the annual family income?
7. What is the ratio of investment to household net worth?

Whether the respondent is asked to report on behalf of their household or themselves is determined by this gating question: *Think about the finances (income, expenses, debt, assets etc.) of your household. How much do you know about all the finances?* A response of "everything" or "most things" gets them assigned to responding on behalf of their household.

— 4.3

Summary of results

Household or individual?

Of the 501 respondents, 56% noted they knew “everything” or “most things” when it came to finances of their own family, allowing us to tag them as responding on behalf of the household (HH). Based on mean, median, and rank tests for each variable, tested between the individual and HH responses, there were only three cases out of forty two tests where the results varied at a 0.05 level between individuals and HHs. Since there is no significant difference in the overall responses to the FH questions, irrespective whether one responds for oneself or for one’s HH, and there are no structural issues (e.g., significant skews or other oddness in distribution) in either subgroup, we do not have evidence to suggest the adoption of either the individual or HH as the preferred unit of analysis.

Since those responding on behalf of the HH would also know about their own financial circumstances, but not the other way around, we will use the individual as the unit of analysis. Note that if there were significant differences in the responses, we would have had to resort to two separate surveys, and modelled FH separately for individuals and HHs.

Qualitative or quantitative measures?

We rely on factor analysis to advise us on which questions best capture the financial health of respondents. Four factors were identified from the set presented in Boxes A and B above, along with the questions that had the most explanatory power in terms of explaining the variances seen within responses. Based on this analysis, we recommend the following ten questions to measure the FH of gig workers in China. We group them into four categories as indicated by the factor analysis, and name them for thematic consistency. Note that the set consists of nine qualitative questions, and one quantitative one.

Dimension	Topic explored by question
(D)ay-to-day Management	Enough money to meet basic needs every day
	Has a feasible budget or financial plan
	Saves money for emergency funding needs
	Has insurance sufficient to cover risks
	Financial situation brings pressure
(R)esilience	Basic need that can be sustained by emergency savings for four weeks
	Basic need that can be sustained by temporary loans for four weeks
(A)gency	Can control current and future financial situation
	Has confidence in future finances
(C)apability	Ratio of total household debt to total household assets

Table 2. Proposed questions to measure FH for gig workers

We recognize that this set of questions, grouped under Day-to-day management (D), Resilience (R), Agency (A) and Capability (C), is different from the DORA framework presented in Section 2. Some dimensions are combined, while a new one is introduced; thus we call it the "Financial Health+" measure.

While this ensures that the framework is most appropriate for gig workers, it does limit comparison with other FH measurement exercises and cannot be ported over in its present form to other populations. Nevertheless, we hope that this provides a roadmap for others who may wish to create FH measures that may be more appropriate for a target population than a solely expert-based one.

— 4.4

Calculation of the Financial Health Index

We will use the ten metrics presented above to form a single index by equally weighting each indicator, as we do not have reason to believe that any of the questions or dimensions are more important than the others. The index synthesis method uses the arithmetic average method for index synthesis. Each of the metrics are normalized before inclusion in the index. The final score will be represented on a 11-point scale, with the range being between 0 and 10.

05

APPLICATION OF FH+ MEASUREMENT

A major motivation for the re-conceptualization of Financial Health for gig workers in China and the exploratory research undertaken is the subsequent implementation of these findings through a digital application ("app"). With continued support from the Metlife Foundation, CAFI will deploy an app that measures the digital health of gig workers, including delivery riders, with technical assistance from BFA Global. The metrics identified during this exercise will be at the core of the measurement exercise.

Based on three waves of surveys that traced the impact of COVID-19 on delivery riders in China during and after the pandemic, we found that delivery riders were hit harder than other livelihoods across all dimensions of financial health. The surveys found that only 7.4% of the riders had increased income during and right after the pandemic, while almost 80% tapped into their emergency savings and 76% could not get any external support during the pandemic. Given their predicament that we detailed in sections 3.3 and 3.4, it is likely that their financial health continues to suffer today from volatile incomes and limited access to full suites of financial products.

Creating an app for gig workers first, and not tying it to one specific platform, will allow for the collection of self-reported data that is not limited by the fact that they may be employed across multiple platforms. The app will have built in incentives that promote regular reporting of candid data. It will also offer advice on how to improve financial health, based on what gig workers report. The app will collect data over time, as changes to FH do not manifest themselves in short order. Finally, online data collection will be complemented with offline research that will seek to calibrate and validate various insights revealed from self-reported data.

By bringing the treatment of financial health to the forefront of gig workers' lives through this app, we hope to increase the importance they place on making improvements to each of the four dimensions as they strive for upward socio-economic mobility. We also hope to play a small role in that process by providing appropriate advice, and if the circumstances allow in the future, connect the delivery riders and other gig workers to appropriate financial products and services.

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Chinese Academy of Financial Inclusion (CAFI) is an international professional research institute under the School of Finance and Economics at Renmin University of China. Guided by the concept of "Commitment, Action, Focus, and Impact", CAFI is committed to building a first-class think tank and platform for financial inclusion, facilitating the development of an inclusive financial system, and fulfilling the vision of "Good Finance and Good Society".

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