The Borrowing Puzzle: Why Do Filipino Domestic Workers in Hong Kong Borrow rather than Dissave?[a]

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Abstract

Despite their predictable and regular incomes, Filipino domestic workers in Hong Kong commonly finance large expenses through interest-bearing loans rather than savings. Our analysis of survey data and the records of a credit cooperative for migrant workers suggests that this cannot be explained by their inability to save, by financial illiteracy, a short time horizon or limited liability. Instead, we speculate that the strict schedules and high interest rates of these loans create a disciplining effect that these individuals find desirable. This may help them avoid unnecessary consumption, or demands from their social network. However interventions should also consider the fact that members of the social network often provide non-monetary reciprocal benefits.

Keywords: migrants, savings, loans

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1 Introduction

Domestic workers make up a significant flow of migrants in Asia. Employers from several higher-income countries such as Hong Kong, Malaysia and Singapore recruit live-in domestic help from countries such as the Philippines and Indonesia. This migration is temporary and is almost entirely motivated by economic gain. However, our understanding of the benefits of such migration on the migrant's household is sparse. Migrant remittances have been shown to improve the contemporaneous living standards and educational investments of dependents, but what are the long-term economic gains and opportunities for upward mobility that such migration enables? In particular, are these migrants economically self-sufficient in their retirement after they return to their home countries? Does the migration successfully enable a transition to higher-wage occupations for the next generation?

Definitive answers to these questions require large-scale and long-term data collection and plausibly exogenous variation in the migration decision. However even in their absence, we can observe and analyse the constraints and choices among migrants, and make inroads toward an understanding. In this paper we begin by acknowledging that migrants' financial choices during their tenure in the host country greatly influence their and their households' outcomes in the future. Whether their incomes are spent only on consumption or are also saved, and whether they make productive investments for financial gain, will determine both whether they will retire comfortably and also whether the migration will improve their economic status.

Our particular study population is Filipino domestic workers in Hong Kong. We examine how they manage their finances, specifically, their choice between savings and loans. As we will document, it would appear that their financial choices do not maximise their economic gains. We find that they commonly finance foreseen, discretionary investments through debt rather than savings – taking interest-bearing loans from moneylending companies rather than first building up their savings and then dissaving cheaply. In fact, we find evidence of "co-holding", i.e. that they hold liquid savings and borrowing at the same time. We will argue that this imposes a significant financial cost and yet offers no financial benefit: the debt contracts are not designed to transfer project risk to the lender, interest rates are non-negligible, and in fact, loan default imposes a heavy cost, with the real risk of losing their job and cutting off future earnings in Hong Kong.

To identify and then examine this “borrowing puzzle”, we draw on data collected through a survey, a lab-in-the-field experiment, and the records of a credit cooperative that caters to migrant workers in Hong Kong. In 2017, we interviewed a sample of 136 Filipino domestic workers and asked about their employment history, wage income, remittances, savings, and loans. Subjects also participated in a lab-in-the-field experiment where they allocated a given endowment among a set of options with differing risk and returns.

We document the following facts. One, as expected, most Filipino domestic workers remit to their home country regularly. Often these remittances support not just their immediate nuclear family, but support educational and health expenses for their extended family as well. Thus these migrants appear to take on the responsibility of supporting several individuals back home.

Two, although the majority of migrants have bank accounts, they do not appear to use them as a savings device. Bank balances tend to be low and monthly inflows into the accounts are small. However this is not to say that their entire monthly salary is consumed. Anecdotal evidence suggests that many of them invest in “projects” in the Philippines, such as land purchase, house construction, house renovation and repair, and small businesses.

Three, it is common for them to borrow from moneylending companies in Hong Kong. On average these companies charge 25 percent interest per annum. The migrants repay these loans from their salaries in Hong Kong. Our data suggest that only a small fraction of these loans are used for unforeseen emergency expenses; the majority are remitted home for school fees, consumption needs or for investment.

This leads us to the central observation in this paper: Filipino domestic workers appear to routinely finance their investments through loans rather than saving. Moneylending companies have standard contracts for loans to overseas workers, where repayment begins the very next month after the loan is disbursed. The investments generally do not start generating immediate returns, so that we argue that the repayment is financed from the worker's wages in Hong Kong. These wages are contracted and regular, and therefore predictable. Default carries heavy penalties, thus borrowing does not transfer risk to the lender. We consider different explanations for why many migrants would rather finance investments through borrowing than dissaving. Our data allow us to examine the plausibility of these different explanations. Although we cannot conclusively accept or reject a particular hypothesis, we discuss possibilities for future research that could shed light on this issue.

2 The Context

Migrant domestic workers made up 9.3% of Hong Kong's work force in 2016. More than half of these were from the Philippines[Government of the Hong Kong SAR, 2017]. They perform a range of services for their employers, including cleaning, cooking, shopping for groceries, babysitting, ferrying children to and from school and extra-curricular activities, and caring for the employers' aged parents and pets. Their services facilitate the labour force participation of working-age Hong Kong women, especially mothers with young children[Cortes and Pan, 2013].[1]

The Philippines was one of the first countries to send workers through Hong Kong's foreign domestic helper program that began in the 1970s. This program grants migrants a special "foreign domestic helper" visa, which entitles them to work for a single employer in Hong Kong. Employers are required to pay at least a "minimum allowable wage". As of 2020 this minimum wage is HKD 4630; it is usually revised once a year to adjust for changes in the cost of living.[2] Foreign domestic helpers cannot qualify for permanent residence in Hong Kong. They can continue to reside in Hong Kong as long as they are gainfully employed as domestic workers, but the employment contract and visa must be

[1]The benefits from employing foreign domestic workers likely extend beyond the effect on female labour supply. Tan and Gibson (2013) argue that domestic workers do not increase female labour force participation in Malaysia, but speculate that Malaysian employers can enjoy increased leisure and can specialize in childrearing, with possible gains in their childrens human capital.

[2]Note that by law the worker must live in the residence of the employer, and so she is not expected to incur any housing costs.

renewed every two years.[3] Thus these individuals are temporary economic migrants: they live in Hong Kong only for as long as they can be gainfully legally employed. They are generally aware that as they get older, employers become less likely to employ them, and that they will retire in their home country.

These migrants' wages are lower than most of the Hong Kong population.[4] They do not qualify for pensions or other financial benefits. Commercial banks usually target higher-income groups, as a result foreign domestic workers have only limited access to formal banking services. However Hong Kong's laws put no restrictions on whether and how much migrants can borrow from local moneylending companies.[5] This creates an interesting dichotomy where they have only limited access to formal savings accounts, but extensive access to formal loans. This paper examines how they manage their finances against this backdrop.

3 Data Collection

In 2017, we enrolled 141 Filipino domestic workers to participate in our survey and lab-in-the-field experiment. Of these, we have survey data from the 136 who successfully completed the two parts of our interview.[6] Below we describe the process by which this sample was created.

Migrant domestic workers in Hong Kong are required by law to live in their employer's house. They usually work 6 days per week for unspecified hours, and then spend most of their weekly holiday outside the employer's house.

[3]If they become unemployed, migrant domestic workers must leave Hong Kong within two weeks and may only re-enter after an employer has signed a new two-year contract. Note that when they fire a domestic worker, employers are required to pay for the worker's travel back to their home country.

[4]There are no regulations about or definitive data on the number of hours that they work per day. However taking a conservative estimate of 10 hours per day for 6 days a week, the monthly minimum allowable wage for domestic helpers in 2019 translates to an hourly rate just below HK$20, or roughly 50% of the Hong Kong minimum wage. Domestic helpers do not fall under the purview of the minimum wage ordinance.

[5]In contrast, in 2019 the Singapore government placed a limit on how much individuals can borrow from Singaporean moneylenders. Some have even argued that domestic workers' loan applications should be pre-approved by their employers[Ng and Tan, 2019].

[6]All 141 participated in the first face-to-face interview, but only 136 could be contacted 4-8 weeks later for a phone interview that asked about financial transactions that had occurred since the first interview, and asked additional questions that helped to compute loan interest rates.

This makes it very difficult for investigators to survey them in their residence. Given the length of our survey and experimental sessions, we believed it would be difficult to enroll participants by approaching them on the street or in public places.[7] We therefore advertised our study through Whatsapp and Facebook with certain nodal Filipino domestic workers, and asked them pass the advertisement on.[8] Interested persons could click on a web link and answer a short enrollment questionnaire. We then contacted these enrollees and reserved a study session slot for them.[9] In this way we created a respondent-driven sample.

A respondent-driven sample may not be representative of the underlying population of interest. The nodes that we began with were not randomly chosen, and if we had only relied on the nodes to spread the word, we might have only reached their friends. We therefore attempted to create a "snowball" by offering each participant a bonus per referred person who also signed up for our study. This created an incentive for every participant to spread the word to her friends. Again, to avoid swamping the sample with the acquaintances of the more popular participants, we offered this bonus for only 4 referrals, and no more. However, snowball samples only approximate random samples in the limit, and our sample of 136 respondents is unlikely to be sufficiently large [McKenzie and Mistiaen, 2009]. We therefore present re-weighted descriptive statistics that better approximate the true population of Filipino domestic workers living in Hong Kong.[10]

We also draw on the records of the Asian Migrants Credit Union, a Hong Kong credit cooperative that primarily targets migrant domestic workers. All individuals who join the cooperative are provided a savings account. Six months after they enroll, members become eligible to use the credit facility. First-time

[7]Relatedly, Barua, Shastry, and Yang [2019] found that domestic workers recruited in public places in Singapore were unlikely to sustain participation in their study.

[8]These nodal persons were elected officers of the credit cooperative that we also use data from.

[9]Nearly all migrant domestic workers in Hong Kong use smartphones, and a very large fraction use social media, and so it was fairly easy for them to view and answer our enrollment questionnaire. Once we received their online submission we called them to explain the details of the study session and register them into a time slot.

[10]We draw the weights from the distribution of Filipino domestic workers' age, education level and length of stay in the 5% micro-sample of the 2016 Hong Kong By-census. The Appendix provides further information about this micro-sample and how we use it.

borrowers may only borrow up to two times their savings. The entire loan is collateralised by the savings balance of the borrowing member as well as the savings of the guarantors, who are other members of the cooperative. The interest rate is set at 1 percent per month and repayment is on a monthly schedule. We look at the contracts of all loans that were approved by the cooperative in 2017-18, to examine the stated purposes of these loans. We also analyse members' choices between saving and borrowing during the period 2011-18.[11]

Finally, we also draw on the findings of a lab-in-the-field experiment with all 141 subjects who participated in our study. The goal of the study was to examine how participants respond to the rate of return when making savings choices. All subjects were given an endowment of 100 tokens (1 token was equivalent to $1), and in each round they were asked to allocate these tokens across three accounts: a savings account that generated a sure return, an investment account that would generate a return of 10 percent but with uncertainty, and a lottery account where each token would give them a chance of winning a handbag as a prize. Subjects were randomly assigned to groups and played multiple rounds within each group.[12]

4 Some Facts

Table 1 presents re-weighted descriptive statistics about the respondents in our survey. The average Filipino domestic worker was 36.5 years old. She had left the Philippines for work about 6.5 years prior to our study, had been in Hong Kong for nearly 5 of those years and had worked for her current employer for about 3 years. Given their profession, domestic workers reported relatively high education levels. A third had studied beyond high school, and a fifth had an additional academic qualification beyond high school.[13]

As we mentioned before, migrant domestic workers must work for only one employer. Contracts are signed for a 2-year duration. Our study took place

[11] Although we have the transaction records for the period 2011-18 for the credit union, we only have access to the loan applications for 2017-18.

[12] Further details about this study are provided in the appendix.

[13] This need not be a university degree; the category includes associate degrees, vocational training and professional courses.

between January and May 2017, thus the workers we interviewed must have signed their current contracts no sooner than May 2015. The minimum allowable wage was set at HKD 4310 for contracts signed between October 2016 and September 2017, and HKD 4210 for contracts signed between October 2015 and September 2016. The median worker in our sample received exactly HKD 4210, but the mean was a slightly lower HKD 4150. Overall, the evidence suggests that employers comply with the minimum allowable wage regulation. More than 80 percent of workers received the wages as cash, which is indicative of the low use of formal banking or other financial services.

As is to be expected, a large party of their salaries were remitted back to their households in the Philippines. Eighty-eight percent of the sample had remitted money home within the last two months. On average, they remitted HKD 2164, or 52 percent of their monthly salary. These remittances supported on average 3.7 individuals. This included not just her immediate family but the extended family as well.[14]

4.1 Savings

Strikingly, 83 percent of our sample had active bank accounts at the time of the survey. Of these, 91 percent of workers had accounts in the Philippines, whereas a much lower 32 percent had accounts in Hong Kong. Nearly all bank accounts were single-holder accounts; only 6 percent of account holders reported having joint accounts. However bank balances were low. Across both Hong Kong and the Philippines, the average respondent held only about HKD 5840 or 1.4 months' salary in the bank. Net inflows were actually negative during the period that we asked about, viz. the 2 months prior to the interview. Other savings devices were not very common. Only 11 percent reported membership in a Rosca, where they made a monthly contribution of HKD 340 on average. Nobody reported using a money-guarding arrangement.[15]

[14]Fifty-six percent were supporting their parents, and 34 percent were supporting other dependents, such as grandchildren, siblings, nieces and nephews, cousins or grandparents.

[15]A money-guard is a person who holds money for the subject to help her avoid spending or losing it [Collins, Rutherford, Morduch, and Ruthven, 2009].

4.1.1 Savings Response to Rates of Return

Migrant workers may have held small bank balances because the accounts offered low rates of return.[16] To examine whether migrants' savings balances respond to interest rates, our experiment randomly assigned participants to a "savings product" with one of two rates of return: a low 3% rate, or a high 10% rate. Strikingly, we find no evidence that participants assigned to the high return condition allocated more tokens into the safe account. Respondents in the low return condition placed $53.3 out of $100 worth of tokens into the safe account, and those in the high return condition placed a nearly identical $51.7 (difference = 1.6, p=0.68). The rate of return on savings also did not affect the allocation to the other two accounts.[17]

To understand whether this behaviour can be explained by migrant characteristics, in Table 2 we examine whether respondents with different characteristics respond differently to the change in the rate of return. Our data consist of 324 person-round level observations across the 141 respondents who participated in the experiment. Our regressions includes dummy variables for the round in which the allocation was made. This controls for round-specific effects, or learning over time. In column (1) we include as an explanatory variable a measure of the respondent's risk aversion.[18] As expected, we find that more risk averse respondents placed a larger number of tokens in the safe return box. In column (2) we include controls for age, education and length of stay in Hong Kong; this does not change the coefficient on risk-aversion significantly. In column (3), we add a dummy variable for whether the respondent faced the 10% return on savings. Controlling for risk-aversion, we do not find that respondents who faced a higher rate of return placed more tokens than comparable respondents with a lower rate of return. Finally, in column (4) we interact the risk-aversion

[16]Hong Kong savings interest rates are nearly 0%. At 0.1%, interest rates in the Philippines are only slightly higher. Inflation rates in 2017 were 1.48% in Hong Kong, and 2.85% in the Philippines.

[17]Investment account: $32.2 in the low savings return condition v. $30.5 in the high return condition (difference = 1.7, p=0.64); Lottery account: $23.3 v. $24.4 (difference = 1.1, p=0.73).

[18]Risk preferences were elicited using an incentivised Lowry list method where participants were asked to choose between a safe option and a lottery with a high and a low payout, where the probability of the high payout successively increased. In line with Yu, Zhang, and Zuo [2019], respondents were encouraged to choose a single switching point from safe option to lottery.

measure with the dummy variable for the high-return treatment. There is no evidence that more risk-averse individuals responded differently to the rate of return than the less risk-averse. In columns (5)-(8) we consider heterogeneous effects by the respondent's financial literacy.[19] Again, there is no evidence that financial literacy levels affected how participants responded to the rate of return. To the extent that these results can be translated into their behaviour in daily life, it does not appear that migrants' disinterest in saving is driven by the low rates of return.[20]

Note also that the credit cooperative paid considerably higher dividends (1 to 3% per annum) than the Hong Kong commercial bank interest rate during this period. Despite this, we find a low savings rate among members of the credit cooperative. The average member made a net deposit of only HKD 44 per month into her account. There is also no evidence that the members' savings rates responded to dividends. In Figure 1 we plot the monthly net deposits per member against the dividend rate that the credit union paid in the previous year.[21] There is no indication that members saved more per month when dividends were higher.

4.2 Credit

Loans allow individuals with small cash inflows to consume or invest in the present, instead of having to postpone or forego these activities. They can also help smooth consumption in the face of negative shocks. Below we examine the nature of borrowing by our sample subjects.

Once again, our summary statistics have been re-weighted to match the distribution of Filipino domestic workers in the 2016 Hong Kong by-census. Forty-six respondents (or 37 percent of our re-weighted sample) reported that at the time of the survey they had an outstanding loan from a lender in Hong Kong.

[19] In Section 5.3 we describe how we measured financial literacy.

[20] As we see across the table, respondents with a post-high-school qualification place more tokens in the safe return box. However there is no evidence that they increase their safe token allocation when they face a higher safe return (results available upon request).

[21] Each year's dividends are announced at the end of the year and depend on the credit union's profits during the year. Arguably members could not have known the dividend when they made the saving decision, but they could have used the previous year's dividends as a predictor.

When we compute their monthly repayment obligation we find that on average they had committed to paying 55 percent of their salary in loan installments each month. Table 3 also shows that 88 percent of the loans had been taken from moneylending companies. The cooperative only gave out 3 percent of the loans. The other sources were informal: either informal borrowing from their employers, or loans from friends and relatives in Hong Kong. Loans from moneylending companies were the largest of all: the average principal amount was HKD 22176. Loans were for an 11-month duration on average, the interest rate was 26 percent per annum, and payment was due on a monthly basis.

Employers gave zero-interest loans. An average loan given by an employer was for HKD 15,339 on average, or just over 3 months' salary. Employers also took payment on a monthly basis, usually by garnishing the worker's salary payment. Loans from the credit cooperative were similar in size at HKD 13154 on average. At 7 percent per annum, the cooperative charged less than one-third the interest of the moneylending companies.[22] Loans from friends and relatives were significantly smaller, and although many subjects expected to repay on a monthly basis, the repayment schedules were more likely to be flexible.

In keeping with our finding that respondents had received loans from friends and relatives in Hong Kong, 14 percent of our survey respondents told us that either friends or relatives in Hong Kong owed them money at the current time. Of the 27 such loans, 5 represented a sharing arrangement where the respondent had taken a loan from a moneylending company and then shared it with another domestic worker.[23] Another 3 were given out by a single respondent to three different friends at 10 percent interest over a 6 month duration, or 1.67 percent per month.

[22]The cooperative capped the loan principal at 2 times the borrowing member's savings balance in the cooperative.

[23]This is an informal arrangement where the individual who is formally listed as the borrower "shares" some of the loan principal with a friend. Often this friend is either the reference person or the guarantor for this loan. Both friends then pool together to make up the monthly payments. In case of default the moneylender first contacts the borrower and then contacts the reference person/guarantor. They may also contact the employer of either or both domestic workers and demand payment from them. It is possible that this informally-created joint liability improves loan repayment for both the borrower and the sharer. Moneylenders offer "VIP status" to borrowers with good repayment records. VIPs earn in-kind rewards and rebates on their own loan payments in return for referring new borrowers to the moneylending company.

Thus the survey data suggest that it is common for Filipino domestic workers to borrow. In fact, the records of the credit cooperative suggest that migrants need not borrow as much as they do. We present below evidence that a large proportion of cooperative members “co-hold” loans at the same time as they hold liquid savings that could be drawn down instead.

Since the interest cost on these loans (1 percent per month) is considerably higher than the return on savings (AMCU dividend rates range from 1 to 3% per year), it is in the members' interest to take the smallest loan necessary to finance their need. However, in 17.5% of the 200 loans that the cooperative gave out over the period 2011-2017, the member had larger savings in the cooperative than the amount she borrowed. Clearly it would have been cheaper to instead withdraw these savings and avoid the loan altogether. Instead, by taking the loan and securing it with part of her savings, she both took on an additional interest expense, and rendered part of her savings illiquid.[24]

Second, even when the member's savings were smaller than her loan amount, the evidence suggests she could have borrowed less than she did. Specifically, she could have withdrawn part of her savings, thereby reducing the loan size and interest cost, while still financing the expense. To see this, note that one-half of the loan is secured by the member's savings and therefore cannot be withdrawn. Call this her illiquid savings, i. The remaining savings is liquid; denote this by l. Thus total savings $s = i + l$. If the expense is e then we know that $e - l = 2i$. We can then calculate her illiquid savings as $i = e - s$, so that the remaining $l = 2s - e$ can be withdrawn. By withdrawing the entire l, a member would take the smallest loan necessary to finance the expense. For example, a member who needs to finance an expense of $1000 and has $700 in savings would minimise costs by maintaining a savings balance of $1000 - 700 = $300 to take a loan of $600, and withdrawing the remaining $400.

Instead, we find that in 62.5 percent of the credit cooperative loans, the loan principal was less than two times the member's savings balance at the time.[25]

[24]The cooperative limits a member's loan amount to twice her total savings balance at the time of the loan application. This savings balance secures the loan and cannot be withdrawn while the loan is outstanding.

[25]Our methodology and findings are similar to that used by Laureti [2018] in her analysis of the clients of SafeSave, which provides flexible savings-and-loans accounts to slum-dwellers in

The data thus suggest that it is common for Filipino domestic workers to finance their investments and perhaps even their families' consumption expenses through loans, rather than saving. In what follows, we consider different explanations for why they may do so.[26]

5 Explanations for Indebtedness

We start by examining some common explanations for the high incidence of debt.

5.1 Debt due to Migration Costs

It is widely reported in Hong Kong that domestic workers bear a large financial cost to get a job placement. This appears to apply both to workers located in the Philippines looking to migrate, as well as workers located in Hong Kong who are in between employers. PLUDWHK and Hong Kong Federation of Asian Domestic Workers [2016] reports on an investigation where researchers made anonymous phonecalls pretending to be domestic workers in search of employment. They found that most employment agencies charge workers a sizeable illegal fee for the placement service. If the worker is unable to pay the placement fee upfront, the employment agency often refers her to a lending company. Job applicants can also take loans in the Philippines and repay them from Hong Kong. It is reported that the average Filipino domestic worker takes 6 months to pay off this loan.

Thus, migrants might be arriving in Hong Kong already in debt, and may continue to be indebted for a significant duration of their first contract. If they incur a placement fee again when they switch employers, then they may need to take another loan and could be indebted for part of their first contract with the new employer. If they faced any large unexpected consumption or investment

Dhaka, Bangladesh.

[26]When a cooperative member over-borrows, she takes a larger loan than necessary, but also secures a larger fraction of the loan with her own savings, thereby relying on a guarantor to secure a smaller fraction. If she instead withdrew her savings and took a smaller loan she would still need a guarantor to secure the exact same dollar amount. Thus over-borrowing does not reduce dependence on the guarantor.

expense during this period, they may need to take another loan, possibly setting them on a path of repeated indebtedness.[27]

If indebtedness is explained by the placement fee expense, then we should see greater indebtedness among migrants who are in their first contracts, than migrants who have been with their current employer for longer.[28] In fact, only 29% of our sample who were in their first contract currently had a loan in Hong Kong, versus 37% of those who had been with their current employer for longer (difference statistically non-significant).[29]

5.2 Unexpected Expenses

We have referred above to the possibility that negative shocks may induce migrants to borrow to smooth consumption. If migrants are using the bulk of their incomes to support the regular expenses of their families, then even a migrant who saves regularly may simply not have enough saved up to cope with a shock. However, the data from the credit cooperative suggest that this cannot be a complete explanation. When we analyse the stated purpose of the 40 loans that migrant domestic workers took from the credit cooperative in the year 2017-18, we find that nearly two-thirds were for expenses that could have been anticipated: land purchase, home renovation, or school fees for children back home. Only 21% of loans were for the medical expenses of relatives.[30] Of course, there is the question about whether we can trust the stated purpose of the loan. However the credit cooperative has an informal policy of providing faster customer

[27] Recently, three major moneylending companies appear to have started sharing information about their clients' loan records; in informal conversations domestic workers report that they can no longer take multiple loans from different moneylenders.

[28] Recontracting with the same employer is a relatively easy process, and most domestic workers do not rely on employment agencies for it.

[29] The low incidence of loans among those in their first contract may seem puzzling. Noting that it is illegal to charge placement fees to workers, it is possible that more experienced workers are more aware of this rule, or can find employment more easily through word-of-mouth or other means, rather than using an agency. We therefore test, but reject the hypothesis that new arrivals to Hong Kong are more likely to be in debt. This could be because their loans were taken in the Philippines and are therefore are not being reported as Hong Kong loans. In any case, this does not suggest that migration-related costs are causing the indebtedness we observe in Hong Kong.

[30] The rest could not be cleanly classified into emergency or non-emergency purposes. For example, house repair could be an urgent expense in response to sudden damage, or could be a non-urgent expense that was planned ahead.

service for emergency loans, and so it seems unlikely that borrowers underreport the true incidence of emergencies. Rather, it appears that the bulk of the loans are not being used to smooth shocks.

5.3 Lack of Financial Knowledge

Domestic workers may not understand the financial cost of borrowing. In other words, they may not realise that they can lower their financial costs by using their savings instead of borrowing. To examine whether this can explain the observed behaviour, we examine whether indebtedness varies by financial literacy levels. Our measure of financial literacy comes from two questions we asked in our survey. In each question, the respondent was presented with two alternative hypothetical loans and needed to determine which loan was cheaper.[31] The respondent's financial literacy score takes a value of 0, 1 or 2 depending on whether she correctly identified the cheaper loan in none, one, or both of the questions.

First, our data do not suggest that respondents are generally unable to evaluate the cost of a loan. Fifty-one percent of respondents answered both questions correctly, and 40 percent answered one correctly. However 37% of those who answered both questions correctly reported having an outstanding loan, compared to 30% of the others. This difference is not statistically significant. Thus it does not appear that their behaviour stems from an inability to compute the financial costs.

5.4 Lack of Self-Control or Other-Control

Hong Kong is a consumerist society, and shopping opportunities are everywhere. It could be argued that this creates the temptation for Filipino migrants to purchase goods that may not be strictly necessary. Excessive consumption of

[31] In question 1, the two loans had an identical duration but differed in the principal and the interest. Thus respondents would have needed to work out which loan was cheaper per dollar of principal. In the second question, the two loans had identical principal and duration, but the loan installment size and installment frequency varied. Thus they would have needed to work out which loan required the larger repayment amount. The exact questions are reproduced in the Appendix. For each pair of loans we asked them two questions: which loan was cheaper, and which loan they would prefer to take.

these goods could prevent them from building up their savings, so that they might need to borrow to finance large expenses.

Alternatively, migrants could lack complete property rights over their earnings. In other words, they could be remitting larger sums than they had planned to, or purchasing items that they did not plan to, not because they lack self-control but because others in their social network make demands on their incomes. For example, their families back home may demand gifts, or ask for larger remittances. Similarly if they have surplus cash, their friends in Hong Kong may request loans or treats and these may not be repaid or reciprocated.

Either of these two mechanisms could lead them to have low savings, necessitating that they borrow to finance large expenses. Although our current data do not allow us to validate these explanations, we will discuss these mechanisms further in Section6.3.

6 Explanations for Over-borrowing

As we discussed above, the puzzle is not only that savings tend to be low on average, but that often individuals choose to borrow, instead of withdrawing their savings. We now discuss some explanations for this behaviour.

6.1 Limited Liability

Recall that the stated purpose for most credit cooperative loans was often a productive investment such an educational expense, property purchase or construction, or a business investment. These are potentially risky investments. If loan contracts offer borrowers limited liability, then by financing the investment through a loan, the migrant worker transfers the downside risk to the lender and protects her savings.

The fact is however, that neither moneylending companies nor the credit cooperative offer limited liability. Most loans had rigid repayment schedules, and significant additional costs in case of default. For example, it is common for moneylending companies to call the borrower, her guarantor or reference person, and/or their employers over the phone to demand payment for an unpaid installment. Employers who receive these phone calls may fire the domestic worker, thus cutting off her income. The credit cooperative also does not limit the borrower's liability, in fact its loans are completely secured. It recovers unpaid loans by seizing the borrower's and/or her guarantor's savings. Short of quitting the job, a worker cannot default on a loan from her employer since her payments are deducted from her salary. If she did quit before she had paid back her loan she would likely find it impossible to find alternative employment in Hong Kong.[32] It thus seems implausible that MDWs borrow in order to avoid the downside risk of their investment projects.

6.2 Short Time Horizon

Although repayment is enforced quite strongly within Hong Kong, moneylenders may be unable to enforce loan contracts once the worker leaves Hong Kong. If a migrant worker is uncertain about how much longer she will stay, this may effectively lower her cost of the loan.[33]

Migrants who have been re-employed by the same employer multiple times may be more secure about their job. This would be consistent with finding greater indebtedness among migrant workers with a shorter tenure in their job. Instead, Figure 2 suggests that indebtedness rises as the number of years with the current employer increases. This is likely connected to the fact that lenders reward workers who have a more secure job by offering them better loan terms. However it does not match the pattern we would expect if workers' indebtedness was solely caused by the insecurity of their jobs.

[32] Individuals who have breached their previous employment contract are unlikely to be granted a visa for a new contract[Government of the HKSAR, 2020].

[33] To our knowledge, there is no mechanism to prevent migrants from leaving Hong Kong while they are in debt. Moneylenders are aware of this risk, and partly mitigate this by scheduling loans to mature before the worker's current employment contract ends. Thus to avoid repaying the loan by leaving Hong Kong, the borrower would either have to run away, or her contract would have to be terminated prematurely. Both employers and workers have the right to terminate the contract at any time, with one month's notice or one month's payment in lieu of notice. Employers who terminate the contract are required to pay for the worker's travel back to her home.

6.3 Loans as a Device to Solve Control Problems

We have shown about that individuals take loans even when they have sufficient savings. They then repay these loans from the monthly salaries they earn as domestic workers. This raises the following question. If instead they had dissaved, then the same monthly salary could have been used to re-build the depleted savings. One reason individuals may not dissave is that it is difficult to rebuild savings. Indeed, in informal interviews Filipino domestic workers agree that it would be better to save than to borrow. However they report it is difficult to save, because there is always a reason to spend the money instead. This self-reported inability to save has been documented in several other contexts as well. For example, it has provided a rationale for the success of simple savings technologies in Kenya [Dupas and Robinson, 2013]. However, as we have shown above, nearly all our subjects have at least one savings account; access to savings products does not seem to facilitate their saving.

In turn, this suggests that loans may serve an additional purpose. The majority of the loans that we found in our survey data have strict repayment schedules, and so borrowers are committed to pay monthly installments until the loan is paid off. Since default carries large penalties, this could create a credible rationale for avoiding other expenses. The prospect of default could help to resist the temptation to buy oneself an unnecessary consumption good, or the pressure to purchase such items for one's family or give gifts and treats to one's friends. Migrants who are sophisticated about their lack of control may then actively choose to take a loan even if it were not financially necessary. Indeed, Baland, Guirkinger, and Mali [2011] argue that members of a credit cooperative in Cameroon borrow more than they need to, so that they can "pretend to be poor".

Roscas also help overcome the difficulty of saving. Gugerty [2007] reports that western Kenyan rosca members believe that the collective element gives them the "strength to save". In our context, roscas are not very common, probably because roscas rely on mutual "trust", which is more likely to develop when members can monitor each other and enforce promises. These conditions are unlikely to develop organically in a population of transient urban migrants who only meet once a week in a public location.[34] Even among rosca members, we do not find that roscas replace loans altogether, most likely because the rosca pot is limited by the savings capacity of its members.[35]

In contrast, moneylending companies offer much larger loans. Access to the loans is easy, and to apply a domestic worker only needs to show her Hong Kong identity card and employment contract, and provide the phone number of a reference person, or bring along a friend as a guarantor.[36] The high interest rates and strict repayment schedules effectively limit future liquidity and flexibility to smooth consumption shocks, and in extreme situations can cause the worker to lose her income. Possibly these features actually make these loans attractive. Morduch [2010] discusses the case of a South Indian woman who took a high-interest loan that she could have avoided. She believed the high interest rate incentivised her to pay back the loan much more quickly than she could have saved up the same amount.

7 Conclusion

Our research has benefitted from a large literature that precedes it. Many scholars have noted that the poor do not save as much as they could [Banerjee and Duflo, 2011]. However others have also argued that borrowing remains an attractive choice for many poor individuals, even when they have the wherewithal to save [Collins et al., 2009, Morduch, 2010]. This is because the high interest costs or the penalties for non-repayment induce the borrower to repay the loan and make it possible to avoid consumption, in a way that voluntary savings mechanisms do not.

An important question in this context is: what are the compulsions that pre-

[34]Recall that 15% of our survey respondents belonged to roscas. The majority belonged to the same island in the Philippines and knew each other well. However we found out informally that two years after our study the rosca manager embezzled the pot; as of 2020 the members are still waiting to get their savings back.

[35]Thirty percent of rosca members had a currently outstanding loan from a moneylender. Their mean loan size (HKD 25,500) was also similar to the mean loan size for those who did not belong to roscas (HKD 23,149).

[36]Migrant domestic workers who either have a good repayment record or who have been with their current employer for longer than 5 years do not even need a reference person or a guarantor.

vent Filipino domestic workers in Hong Kong from saving successfully, but at the same time allow them to repay loans regularly? A possible explanation is the lack of self-control in the face of consumption opportunities. Certainly there are abundant shopping opportunities in Hong Kong that might test an individual's self-control, and there are anecdotes about domestic workers who splurge on consumption goods that might seem excessively expensive given their low wages.

A second explanation points to the role of "kin taxes" or insecure property rights over one's earnings and savings. Many of the Filipino workers we surveyed were earning considerably higher wages than their kin in the Philippines and were remitting money home regularly to support their expenses. Anderson and Baland [2011] argue that women participate in roscas in order to wrest control from their husbands who might spend on unnecessary items. Ashraf, Aycinena, Martinez, and Yang [2015] find that El Salvadoran migrants in the US deposited more into savings accounts when they had sole control over withdrawals, than when they shared control with their relatives back home. In a lab-in-the-field experiment Jakiela and Ozier [2016] find that Kenyan village residents are more unwilling to publicly reveal their earnings to a room full of fellow residents, when a larger proportion of the fellow residents are their kin. Baland et al. [2011] argue that Cameroonian credit cooperative members take loans instead of withdrawing their savings so that they can "pretend to be poor" and avoid gifting or contributing to their friends and relatives. The Kenyan savers in the work by Dupas and Robinson [2013] also say their savings boxes help them hide their money from their social network.

In informal interviews, Filipino domestic workers report that their families back home sometimes make unreasonable demands for money, and have unrealistically rosy ideas about their financial situation in Hong Kong. However, many also state that it is their responsibility to provide for their family, and is the main important reason why they are working in Hong Kong. Thus, although the literature portrays the demands made by relatives as "taxes", these relationships could be more complex in reality. Admittedly, financial support tends to flow in only one direction from the migrant to her family members back home. However the spouse, siblings, aunts and cousins in the Philippines are often looking after the migrant's children or elderly parents, overseeing house construction and repair, or running the small business that the migrant has invested in. Thus these may also be reciprocal arrangements, where one side provides financial support while the other provides manpower and facilitates peace of mind. Similarly, although friends in Hong Kong may borrow or request gifts, they also lend in return and make gifts when the individual herself is in need. In future work we will investigate the role that these social networks play in shaping the borrowing choices of Filipino domestic workers.

Ideally, possible interventions should be evaluated in the light of these possible mechanisms. Commitment savings products that restrict the individual from withdrawing until a target date or savings balance is reached may be suitable for individuals with present-biased time preferences [Ashraf, Karlan, and Yin, 2006]. Those who wish to flexibly finance the expenses of their families may be better suited to a contractual savings product that requires them to replenish their savings after they have drawn them down [Morduch, 2010]. In a credit cooperative this could take the form of a combination loan-and-savings product where each month the borrower both repays the loan and makes a savings deposit. In future research we hope to investigate the effectiveness of these alternative products.

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Figure 1: Average Monthly Savings Per Member in the Credit Cooperative versus Previous Year's Dividend Rate

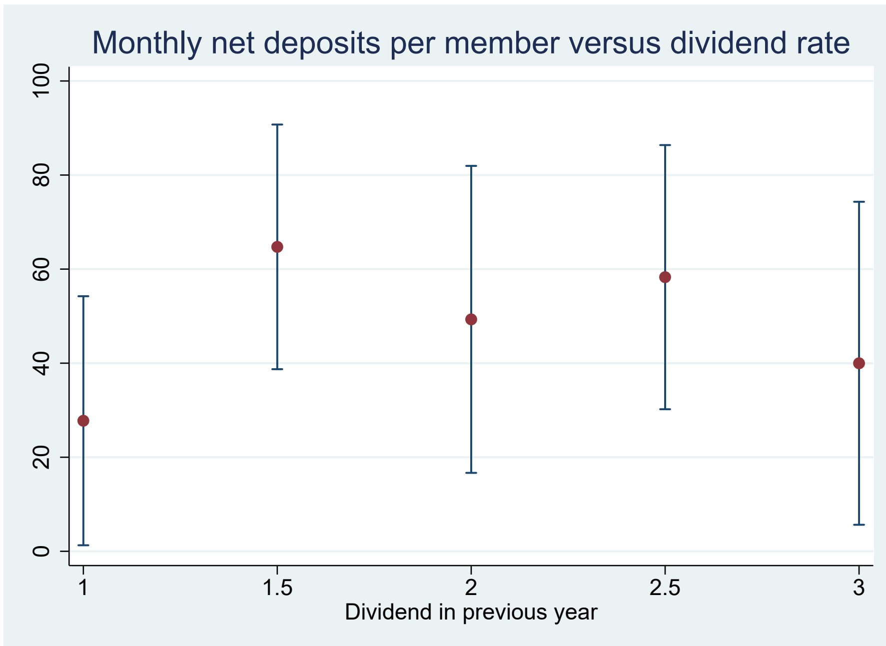

Figure 2: Indebtedness versus Tenure with Current Employer

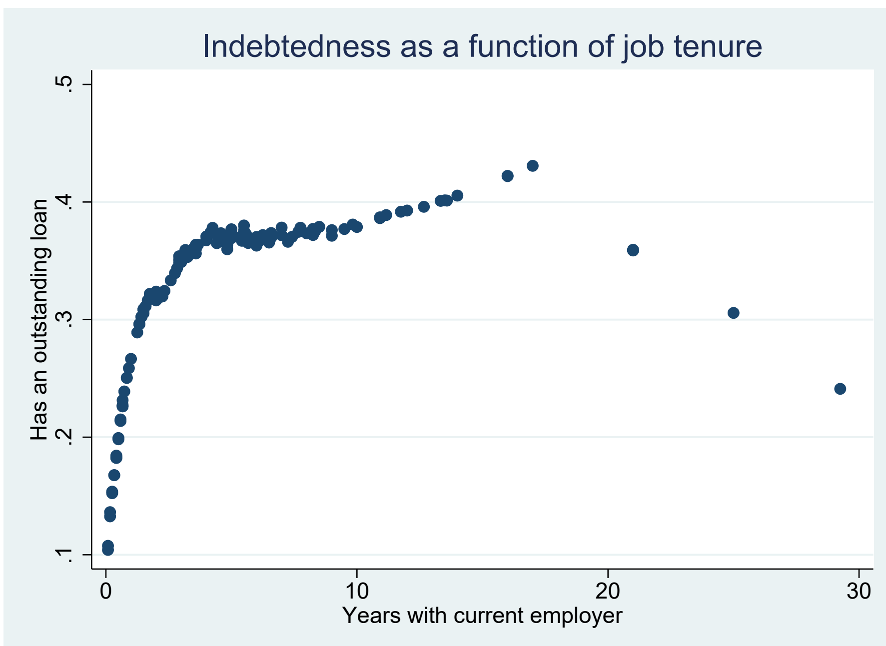

Table 1: Descriptive Statistics of Survey Respondents

	Mean (1)	Standard error (2)
Age	36.5	0.09
Education		
Less than high school	0.49	0.01
High school	0.08	0.00
Some post-high school	0.24	0.01
Post-high school completed	0.19	0.01
Number of children	2.33	0.02
Number of dependents	3.72	0.03
Years since left Philippines	6.59	0.09
Years in Hong Kong	4.84	0.08
Years with current employer	3.26	0.06
Mean salary (HKD per month)	4150.3	16.6
Paid in cash	0.81	0.01
Food provided	0.90	0.00
Food allowance provided	0.10	0.00
Remitted in past 2 months	0.88	0.00
Mean remittances (HKD)	2163.5	20.2
Percent of income remitted	0.52	0.00
Remittance method		
Bank	0.09	0.00
Money service operator	0.64	0.01
Online	0.01	0.00
Other	0.17	0.01
Has bank account	0.83	0.01
HKD account	0.32	0.01
PHP account	0.91	0.00
Has single-holder account	0.97	0.00
Has joint account	0.06	0.00
Total bank balance (HKD)	5839.4	206.5
Mean savings per month (HKD)	-39.8	18.7
Rosca member	0.11	0.00
Uses a moneyguard	0.00	0.00
Has outstanding debt	0.37	0.01
If yes:		
Total amount borrowed	21445.8	296.4
Total repayment amount	27200.3	406.7
Monthly repayment amount as % of salary	0.55	0.01
Has outstanding credit	0.14	0.03

Notes: The survey sample is reweighted to match the distribution of Filipino domestic workers in the Hong Kong population, as estimated in the 5% micro-sample of the 2016 Hong Kong By-census.

Table 2: Heterogeneous Treatment Effects of High Rate of Return on Token Allocation

	Risk-aversion				Financial literacy			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Characteristic	1.50***	1.24**	1.24**	0.14	0.72	-0.20	0.03	-3.81
	(0.51)	(0.52)	(0.52)	(0.84)	(2.05)	(2.09)	(2.11)	(3.31)
High interest rate			-2.62	-21.63*			-2.54	-17.57*
			(3.38)	(11.98)			(3.45)	(10.60)
Characteristic × High interest rate				1.77*				6.34
				(1.07)				(4.23)
Age		0.19	0.17	0.22		0.25	0.24	0.23
		(0.27)	(0.27)	(0.27)		(0.27)	(0.27)	(0.27)
Length of stay		-0.04	-0.02	-0.10		-0.04	-0.03	-0.01
		(0.28)	(0.28)	(0.28)		(0.28)	(0.28)	(0.28)
Education								
High school		-3.26	-3.29	-4.40		-4.02	-3.98	-4.08
		(5.95)	(5.96)	(5.98)		(6.04)	(6.05)	(6.04)
Some post-high school		6.76	6.75	6.10		6.61	6.63	7.56
		(4.85)	(4.86)	(4.86)		(4.90)	(4.91)	(4.94)
Completed post-high school		10.07**	9.95**	9.55**		10.70**	10.56**	11.30**
		(4.81)	(4.82)	(4.81)		(4.85)	(4.85)	(4.87)
Constant	35.18***	24.27**	26.37**	37.71***	49.71***	35.69***	37.11***	45.41***
	(5.89)	(11.09)	(11.43)	(13.30)	(5.36)	(11.87)	(12.04)	(13.23)
R-squared	0.03	0.07	0.07	0.08	0.01	0.05	0.05	0.06
Observations	324	324	324	324	324	324	324	324

Notes: Respondents were randomly assigned to a group of 4-5 (say, n) members and played n rounds with that group before being reassigned to a new group. The data contain observations of the first round they played with each group they were assigned to. We include round dummy variables to control for round-specific effects. Standard errors in parentheses. ***p<0.01, **p<0.05, *p< 0.1.

Table 3: Loan Characteristics

	Overall (1)	Money-lender (2)	Coop. (3)	Employer (4)	Friend / Relative (5)
Fraction of loans	1.00	0.88	0.03	0.03	0.04
Principal	20453.5	22176.2	13153.9	15339.0	1480.8
	(272.8)	(279.5)	(182.44)	(943.0)	(159.98)
Repayment amount	25941.6	28461.0	13571.0	14254.2	1439.7
	(384.4)	(396.52)	(200.8)	(1051.7)	(131.7)
Interest rate	0.23	0.26	0.07	0.00	0.00
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Monthly schedule?	0.98	1.00	1.00	1.00	0.53
	(0.00)	(0.00)	(0.00)	(0.00)	(0.06)
Loan duration (months)	9.8	11.0	5.1	–	–
	(0.12)	(0.10)	(0.20)		

Notes: The survey sample is reweighted to match the distribution of Filipino domestic workers in the Hong Kong population, as estimated in the 5% micro-sample of the 2016 Hong Kong By-census. The annual inflation rate in Hong Kong in 2017 was 1.48%.

A1 Appendix

A1.1 Lab-in-the-Field Experiment

Each subject participated in a single experimental session each. Each session consisted of 8-15 participants who sat at individual computer terminals. Each subject was randomly assigned to a group of 4-5 members, and played 4-5 rounds of the decision-making experiment with this group before randomly being assigned to a new group. At no point could they identify their group-mates among the participants in the room.

In each round, participants were given an endowment of 100 tokens and asked to allocate them across three accounts (or "boxes"): the blue safe box that would give a certain return of x percent, the red box where, if the "investment" option was exercised the return would be 40% with probability 0.8 and zero otherwise; and the green box, that would generate a fixed in-kind return with a probability proportional to the number of tokens placed in the box.

We experimentally varied the rate of return in the blue box to either be 3% or 10%. Experimental sessions were randomly assigned to one or the other rate.

The decision of whether to invest the amount in the red box was made by a different player in the group; we only analyse rounds where the participant was not investor. Also, to avoid endogenous token allocation in response to what others in the group did in previous periods, we only analyse the first round that the participant played with each group.

Each token placed in the green lottery box gave a 0.5% probability of success, so that if the participant placed 10 tokens in this box she would have a 5% probability of winning a hand-bag as a prize. The total earnings from each round were displayed to the player at the end of the round. At the end of the session one round was randomly chosen and implemented, with an exchange rate of 1 token = $1. Thus the participant received the cash payment equal to her earnings, as well as the handbag, if she had won it in the randomly selected round.

A1.2 Financial Literacy Questions

Question 1 Suppose you need to take a loan here in Hong Kong. There are two choices. Loan A: You will get $10,000 for 6 months. You will have to pay back $10,500 at the end of 6 months. Loan B: You will get $20,000 for 6 months. You will have to pay back $20,800 at the end of 6 months.

Which loan is cheaper?

Which loan would you prefer?

Question 2 Suppose you need to take a loan of $10,000 here in Hong Kong. There are two choices. Loan A: You can get $10,000 for 6 months. You have to repay $2,000 every month for 6 months. Loan B: You can get $10,000 for 6 months. You have to repay $600 every week for 24 weeks.

Which loan is cheaper?

Which loan would you prefer?

A1.3 Re-weighting our Sample using the Random 5% Micro-sample from the 2016 Hong Kong By-Census

The 2016 Hong Kong Population By-Census sampled about one-tenth of all residential quarters in Hong Kong, and collected detailed socio-economic data from all households that lived there. We use the 5% sample of the micro-data released by the Census and Statistics Department, and consider the sub-sample of individuals whose relationship to the household head is "live-in domestic helper", nationality is Filipino and gender is female. We check that this sub-sample plausibly consists of Filipino domestic workers: all the individuals report that they are currently working, their economic activity as "employees", their industry as "domestic personnel" and occupation as one of the following three categories: "cleaners, helpers and related workers", "personal care workers" and "drivers and mobile machine operators".

A simple comparison of the summary statistics for variables that are available in both datasets suggests some differences in the age, education levels and length of stay in Hong Kong. Accordingly, we construct the multivariate frequency distribution along these three dimensions in the Census dataset, and then re-weight our survey sample accordingly.

Note that since the lab-in-the-field experiment implemented a randomized intervention *within* the sample, un-weighted average and heterogenous treatment effects are internally valid.