Stress in Boom Times:

Understanding Teachers' Economic Anxiety in a High Cost Urban District

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ABSTRACT

Despite growing concern over teachers' ability to live comfortably where they work, we know little about the systematic impacts of affordability on teachers' well-being, particularly in high-cost urban areas. We use novel survey data from San Francisco Unified School District to identify the patterns and prevalence of economic anxiety among teachers and assess how this anxiety relates to teachers' attitudes, behaviors, and turnover. We find that San Francisco teachers have far higher levels of economic anxiety on average than a national sample of employed adults, and that younger teachers are particularly financially anxious. Furthermore, such anxiety relates to job performance and teacher retention— economically anxious teachers tend to have more negative attitudes about their jobs, have worse attendance, and are 50 percent more likely to depart the district within two years after the survey.

Keywords: teacher labor markets, urban education, economic anxiety

INTRODUCTION

Certain professions—including nurses, doctors, and teachers—require not only high levels of education and specialized skills, but also a geographically dispersed workforce. Although the supply of professionals in rural and low-income urban areas has caused concern for some time (Ricketts 2005, Continelli et al. 2010, Hsia and Shen 2011), supply constraints have surged in urban areas with fast economic growth and escalating costs of living—areas such as San Francisco, New York City, and Washington D.C. For professionals with middle-level incomes, such as school teachers, the expense of living in high-cost areas may prevent their moving to or staying in that area. For those who do stay, high costs may push them to take on lengthy commutes, accept suboptimal housing situations, and experience increased personal anxiety.

These problems are particularly concerning in the San Francisco Bay Area, where the median listing price of a home in October of 2017 was $749,000 and the median monthly rent was $3,295. In the city of San Francisco specifically, these values were approximately $1.2 million and $4,450 (Zillow 2017). In 2016, 15.3 percent of the region's commuters traveled an average of 60 minutes or more each day, relative to 8.7 percent nationally and up from 12.0 percent three years earlier (U.S. Census Bureau).

Although the challenges posed by San Francisco's financial conditions are particularly acute, it is not alone among urban areas where the cost of living is rising rapidly. Cities with the greatest cost of living increases in 2017 included Houston, Denver, Atlanta, Nashville, and a number of others not typically considered the most expensive in the nation (Olya 2017). A recent analysis of Census and housing cost data found that the disparity between the income needed to live comfortably in a city and its respective median household income exceeds $15,000 in over 30 U.S. cities (Lisa 2018). This gap between mid-level earnings and the affordability of urban living is indicative of broader economic trends. Since 2000, nearly all metropolitan areas in the U.S. have seen a reduction in the share of adults in middle-income households (Pew Research Center 2016). As a result, a number of major American cities have increasingly polarized income distributions and growing shares of high-income households (Galka 2017).

Increasing income polarization and cost escalations create particularly challenging economic conditions for teachers who need to live in such locations, but increasingly cannot afford to. An analysis of the nation's one hundred largest school districts found that, in more than a quarter of districts, first-year teachers cannot afford to rent a one-bedroom apartment. In a similar number of districts, teachers with five years' experience and a master's degree would have to spend over forty percent of their monthly income to own a home (Nittler 2017). In California specifically, the share of districts where new teachers cannot afford to rent a one-bedroom apartment is nearly 40 percent. On the extreme end, San Francisco is one of over thirty California districts, mostly in the Bay Area, where the cost of a one-bedroom apartment exceeds 50 percent of new teachers' salaries (Lambert and Willis 2019).

Concerns about the impact of escalating costs on the supply of teachers are mounting (Westervelt 2016, Simmons 2017, Knight and Palomino 2016). The potential deterioration in quality of life that these statistics illustrate may affect not only teachers themselves but also those they teach—including the children of low-income families who live in high-cost areas. Despite growing attention to the problem of affordability generally, we know little beyond anecdotal reports about the experience of teachers and the effects it may have on the education sector.

In this paper, we offer a case study of teachers' experiences in one city with rapidly escalating housing costs, increasing wage inequality, and modestly increasing teacher salaries. It is a case that is at the leading edge of a national trend and has broad relevance to the financial challenges facing teachers in districts across the U.S. Using novel survey data from San Francisco, we find evidence of high economic anxiety among teachers—considerably higher than a national sample of employed workers. Further, we demonstrate that these feelings of financial insecurity are associated with behaviors that could negatively affect students. Our focus is on understanding the prevalence and patterns of economic anxiety among teachers. We also explore the implications, specifically for teachers' attendance, general regard for their job, career aspirations, and retention, suggesting potential impacts on teacher supply and student outcomes. To our knowledge, ours is the first study to focus on K-12 teachers' financial anxiety and its implications for schools and students. The experience of teachers in San Francisco offers lessons

about economic anxiety among middle-income professions that are increasingly marginalized in the face of escalating economic polarization in urban areas across the country.

ECONOMIC INSECURITY IN THE TEACHING FORCE

Existing research on teachers' financial status and wellbeing has primarily focused on teacher pay and its connection to teacher retention (e.g. Hanushek and Rivkin 2004, Allegretto et al. 2004, 2008, 2011). Teacher salaries are low relative to the salaries of other workers with bachelor's degrees, and have fallen farther behind as the U.S. labor market rebounds from the 2008-10 recession (Allegretto and Mishel 2016, PayScale 2013). Low teacher salaries have consequences. Although early sociological research showed the relative importance of teaching's intrinsic rewards compared with financial rewards, (Lortie 1975), more recent research has also shown that teachers' decisions to stay in the profession are responsive to wages and pay incentives. Hendricks (2014) finds that increases in teacher pay reduce teacher turnover, particularly for less-experienced teachers. Clotfelter et al. (2008) find that annual bonuses significantly reduced teacher turnover in schools serving low-income or low-performing students. Feng and Sass (2015) find that loan forgiveness programs targeted toward teachers in "hard-to-staff" areas resulted in decreased attrition from those areas and decreased likelihood of leaving the public-school sector generally, with greater effects resulting from larger payments. Pay can affect teacher sorting among districts and schools (Steele, Murnane, and Willett 2010; Hough and Loeb 2013) and wage increases can draw teachers to districts whose salaries are higher relative to nearby districts (Imazeki 2005). Moreover, financial incentives can affect not only teachers but also their students, with teacher wage increases leading to reductions in high-school dropouts and increases in college attendance (Loeb and Page 2000).

The link between teacher pay and teacher retention has become increasingly salient in light of recent trends in the supply of teachers. Nationwide, the rate of teacher turnover—inclusive of both teacher moves and attrition from the profession—increased over the past two decades. Turnover rates are generally higher in Title I schools and schools with large concentrations of non-white students (Carver-Thomas and Darling-Hammond 2017). According to a recent survey of 25 urban, rural and suburban school districts in California, 80 percent reported a shortage of qualified teachers for the 2017-18 school year (Sutcher, Carver-Thomas, and Darling-Hammond

2018). Earlier research by Ingersoll (2001) suggested that such shortages are driven largely by teachers' early exit from their jobs for reasons other than retirement, rather than an inadequate pipeline of new teachers; however, more recent data has shown that enrollment in teacher preparation programs is also in decline (U.S. Department of Education 2015).

The financial cost of teacher turnover resulting from recruitment, hiring, and training is significant at both the district and school levels (Barnes, Crowe, and Schaefer 2007). Recent estimates indicate that turnover costs districts across the country roughly 2.2 billion dollars each year (Haynes 2014). Moreover, research has shown that teacher turnover negatively affects student achievement, particularly in schools with high concentrations of low-performing and black students (Ronfeldt, Loeb and Wyckoff 2013).

While the impacts of teacher pay and its connection to teacher effectiveness and teacher supply have been thoroughly examined, the existing literature has by and large not made distinctions between teachers' compensation and their sense of financial wellbeing, which necessarily takes into account the economic context in which teachers live. An exception to this is King et al. (2016), which examines multiple dimensions of early childhood teachers' financial wellbeing, including their perception of their ability to cover basic expenses, and finds that financial wellbeing is associated with their young students' behaviors in the classroom. Related research from other fields suggests that financial anxiety and distress is consequential for worker productivity, as it has been shown to generally impact physical and psychological health (Catalano 1991, Currie and Tekin 2015) and reduce the output of innovative workers (Bernstein et al. 2018).

Our research takes a similar approach to King et al., using measures of K-12 teachers' economic anxiety and their ability to cover large or unexpected costs to understand their experience and the relationship it has with their behavior and attitudes toward teaching, and ultimately, their decision to remain teachers in the district. We address the following three research questions:

> Research Question 1: To what extent do teachers in a high cost-of-living area face economic anxiety and how does their experience compare to the nation at large?

Research Question 2: Which types of teachers face the most economic anxiety—by demographics, specialty area, and experience, as well as by assets, financial responsibilities, and family resources?

Research Question 3: How does economic anxiety predict teachers' attitudes and behaviors that could affect their teaching and career choices, and how does it ultimately predict teacher retention?

DATA

Survey Data

This study uses survey data collected in partnership between San Francisco Unified School District (SFUSD) and Stanford University. We administered the survey online, emailing it to nearly all SFUSD traditional public-school teachers in May 2016 and offering a $15 gift card as an incentive to participate. 2,266 teachers responded— a response rate of 69 percent. Appendix Table A1 shows descriptive statistics of the survey's respondents and indicates that they do not significantly differ from the district's public-school teachers as a whole across demographics, experience, or the population of students they teach. The survey included a section addressing teachers' financial stability and sense of economic anxiety; some of its questions were adapted from an economic survey of Americans conducted by Edison Research for the news program Marketplace in February of the same year. With a nationally representative sample, the Marketplace survey provided a contemporaneous window into the financial situations and perceptions of economic stress experienced by Americans broadly.[1] We do not utilize the Marketplace survey as a perfect comparison group for our sample of teachers—there are no subgroup responses for educators specifically, nor for employed people living in high cost areas. However, it serves as a basis for comparing teacher responses to a national sample, which helps contextualize our findings. Amidst residual strain from the 2008 recession and a growing awareness of income inequality more broadly (Lin and Tomaskovic-Devey 2013; Piketty 2014), it is possible that teachers may simply reflect the prevailing sense of economic anxiety of the times.

We ask teachers three questions, modified from the national survey, that collectively form our measure of economic anxiety. Our construct of interest is closely related to economic insecurity,

which Western et al. (2012) describe as the dynamic risk of economic loss that individuals and households face. Like Western et al. (2012), our research recognizes that economic insecurity is not necessarily tightly linked to socioeconomic level; indeed, our research context of San Francisco highlights that insecurity can exist among middle-class professionals in a booming economy. We use the terminology "economic anxiety" to encapsulate a combination of both actual and perceived economic risk. Our measure captures an abiding sense of financial precariousness—as Marketplace reported about the American public in the wake of its survey (see e.g. Ryssdal 2016). The first of the three questions asks teachers how frequently their financial situation makes them feel anxious; the second, how easy or difficult it is to pay their rent or mortgage each month; the third, how difficult it would be to pay an unexpected expense of $1000.[2] As a follow-up, the survey asked whether respondents have a friend or family member they can turn to for help, were they unable to pay the $1000 expense.

In addition to the three primary economic anxiety questions, we use other survey questions to better understand teachers' financial situations and family background, some of which we also adapted from the Marketplace/Edison survey. These questions ask about teachers' household income levels, sources of household income, home ownership, receipt of inheritance or other wealth, student loan repayment, and child care costs. We also ask about parental education level, free or reduced-price lunch (FRPL) eligibility as a child, and whether teachers attended primarily Bay Area schools growing up, as a measure of social and, potentially, financial capital in the community. Lastly, our survey asks teachers how long it takes them to commute to and from school. We use this variable as another indicator of teachers' financial situations and quality of life, since the ability to live close to work and avoid long commutes is generally considered to be an advantage among workers (Kahneman and Krueger 2006; Choi et al. 2013).

Additionally, our survey included a series of questions addressing teachers' attitudes toward their job—including whether they like being a teacher and their feelings about entering the profession in retrospect—as well as questions about their plans for resignation and their interest in pursuing roles in instructional, school, or district leadership. We use responses to these questions as outcomes to test whether teachers' economic anxiety and financial insecurity are predictive of greater well-being, teacher supply, and teachers' career aspirations.

Administrative Data

We match our survey data to administrative records provided by the district in order to examine patterns of economic anxiety across teacher characteristics. We use data on teachers' race, gender, age, experience, subject and school-level they teach, as well as on racial demographics and subsidized lunch eligibility of students in their schools. Our partnership also provides unique data on teachers' attendance and their reasons for missing work, from which we create variables for days missed and whether teachers miss more than ten days in a school year, consistent with the definition of chronic teacher absenteeism used by the US Department of Education's Office of Civil Rights (CRDC User Manual 2014). The administrative records also allow us to track teachers' employment in the district over time, including whether they transfer to another school, leave the district, or retire within the two years following the survey. These measures of teacher attendance and retention serve as outcomes to understand how economic insecurity may affect teacher supply and student outcomes.

TEACHERS' ECONOMIC ANXIETY

Teachers' Perceptions

Table 1 shows SFUSD teachers' responses to the primary economic anxiety questions. We display the frequency and percentage of teachers who selected an answer out of the subset of respondents for whom the question is applicable and who answered the question. Columns (3) and (4) provide points of comparison from the full sample of the Marketplace survey and from the employed subset, respectively. These comparisons to a national sample of adults in early 2016 demonstrate that SFUSD teachers are considerably more likely to experience economic anxiety, with nearly half experiencing frequent anxiety and a full 85 percent experiencing economic anxiety frequently or sometimes. Renters appear to face the most acute anxiety about covering housing costs, with SFUSD teachers who rent being twice as likely to find it very difficult to cover housing costs as SFUSD teachers who own their housing. The prospect of paying an unexpected $1,000 expense strikes 39 percent of teachers as very difficult.

Employed Americans are arguably a better comparison for teachers, but anxiety among SFUSD teachers exceeds that for both the employed subsample and the national sample as a whole.

Although Americans generally express some level of economic anxiety, their responses tend not to fall at the extreme upper end of each question's distribution. Far from merely reflecting a national mood of economic insecurity, SFUSD teachers are more likely to be frequently anxious about their financial situation, to find it very difficult to cover monthly rent or mortgage payments, and to find it very difficult to cover a large, unexpected expense, relative to both national samples.[3] Fewer than five percent of employed Americans find it very difficult to cover their housing costs, whereas 13 to 27 percent of SFUSD teachers (owners and renters, respectively) report that covering these payments is very difficult. Despite their relatively high levels of economic anxiety, however, SFUSD teachers are more likely to indicate that they have someone to turn to should they be unable to cover their expenses. While roughly half of Americans generally do not have a family member or friend they could turn to at a time of acute financial distress, only a fifth of SFUSD teachers responded this way, suggesting that they may have stronger (and more financially secure) support networks despite their financial worries.

Differences among Teachers

Our results further reveal that these levels of economic anxiety are experienced fairly consistently across various subgroups of teachers in SFUSD, except by age. We estimate bivariate linear probability models in which the dependent variable is an indicator for a teacher selecting the most extreme option of the economic stress variables (i.e. feeling frequent financial anxiety, or saying it is very difficult to cover housing costs) and the explanatory variable is a teacher or school characteristic. We test for differences across demographic characteristics (race, gender, age), professional characteristics (experience, subject or level taught), and teachers' school characteristics (share of students by race, share FRPL-eligible). We intend these models to uncover patterns of economic anxiety rather than identify primary drivers of teachers' responses. Table 2 gives the estimated coefficients (interpreted as predicted percentage difference) from these models where each of the seven categories of covariates is a separate model for each dependent variable. We report robust standard errors in parentheses.[4]

Most of the teacher characteristics that we assess are unrelated to expressed economic anxiety, indicating that perceived financial precariousness cuts across the district's teachers. However, age is a strong predictor, with younger teachers more likely to express economic anxiety across

all three anxiety measures. Similarly, veteran teachers are less likely to be economically anxious than their less experienced counterparts; teachers with five years of experience or less experience the most economic anxiety. A number of factors may contribute to this trend. Younger and less experienced teachers not only earn lower salaries than their more experienced colleagues, they are also less likely to be part of a two-income household and are likely to face higher housing costs if they are new to the city or the labor market.

Other demographics are less consistent predictors. For the most part, teachers do not vary by race or gender in how likely they are to feel frequently anxious about their finances or to find it very difficult to cover housing costs. However, black and Hispanic teachers are significantly more likely than white teachers to say that it would be very difficult to cover a $1,000 expense. The same is true for female teachers relative to males.

Although younger, less-experienced teachers tend to be concentrated in high-minority and high-poverty schools, the student population at a teacher's school does not individually predict their economic anxiety with one exception: the share of black students at a teacher's school. With each additional percentage point in the share of black students, a teacher is 0.29 percentage points more likely to be frequently economically anxious and 0.34 percentage points more likely to find it very difficult to cover an unexpected expense.[5] San Francisco's black student population is small for a large urban district (seven percent in 2017), and the schools with the largest proportions of black students tend to be located on the outskirts of the city, relatively far from other city neighborhoods and from the region's main public transportation system. Although location cannot completely explain these findings, it appears to be a contributing factor along with teacher race and experience. In specifications that additionally control for self-reported commute time, or for teacher experience, or for teacher race, the coefficients on share black remain significant in models predicting difficulty covering an unexpected expense. However, in models that control for at least two out of three of these factors, the coefficients on share of black students are reduced to non-significance.

In supplemental analyses, we estimate comparable models using logistic regression and find no differences in the substance or significance of our results. We also estimate models with more

broadly defined dependent variables—for example, indicator variables for respondents reporting financial anxiety "frequently" or "sometimes," or for reporting that it is "very difficult" or "somewhat difficult" to cover a cost. With only a few exceptions across models, the signs and significance of our estimated coefficients remain the same. The results of these and all other alternative models are available upon request.

Teachers' Financial Situations

Our survey data permit us to assess how the specifics of teachers' financial situations predict their economic anxiety. As with our measures of economic anxiety, these measures also draw on teachers' self-reports; however, we asked about broad areas of financial welfare that are straightforward to answer. We asked about teachers' total household income levels, to understand whether higher-earning contributors might cushion educators' relatively low salaries; we also asked about sources of household income, including whether the teacher works a second job to make ends meet. We asked about home ownership, as renting in a city with rapidly increasing rents imparts an additional aspect of insecurity to respondents' lives. We asked about actual or expected receipt of inheritance or other wealth, financial support from family (aside from one's partner/spouse), as well as student loan repayment and child care costs, to gauge some of the additional burdens or safety nets that may shape teachers' sense of the precariousness of their financial situation. Table 3 shows an overview of SFUSD teachers' financial profiles based on these variables, as well as possible indicators of their access to support networks—their parents' level of education, their own subsidized lunch-eligibility as a child, and whether they attended a K-12 school in the area, an indicator of being native to the Bay Area and potentially having family or other long-term connections in the region. As in Table 1, we make comparisons to the Marketplace survey to contextualize our results.

SFUSD teachers tend to have higher household incomes than the national sample. The modal income category among teachers is $50,000-$74,999 (the lower end of the salary schedule in SFUSD), while it is under $50,000 nationally. About 37 percent of teachers have a household income of greater than $100,000, compared to 22 percent of employed Americans nationally. The national survey's highest income category is $150,000 or greater, and although the percent earning this among employed respondents nationally (nine percent) is similar to that among

teachers (11 percent), a small share of SFUSD teachers (less than three percent) reported being in the highest household income category included in our survey, greater than $250,000. That SFUSD teachers have above-average household income levels is perhaps unsurprising. Teachers have at least a bachelor's degree, unlike the national sample, and they have to be able to afford—at least at a minimal level—living in the Bay Area, where communities surrounding San Francisco also experience relatively high cost of living. Nonetheless, SFUSD teachers do not receive the same salary premium that many other Bay Area workers do. The 2016 median individual earnings for a person with a bachelor's but no graduate or professional degree in the Bay Area metropolitan area—around $67,000— was almost $10,000 more than that for the state as a whole (U.S. Census Bureau).[6] However, the average SFUSD teacher salary was, at around $68,000, almost $10,000 *less* than the average teacher's salary statewide (California Department of Education).

Our survey reveals other aspects of teachers' financial situations that indicate an economic struggle or lower quality of life. Nearly 70 percent of teachers report that their SFUSD salary provides the majority of their household income—even though 62 percent of teachers report living with a spouse or partner. Twenty percent of SFUSD teachers have a second job to help make ends meet. This prevalence of additional work is not unique to San Francisco; according to data from the 2011-12 NCES Schools and Staffing Survey, in 11 states at least 20 percent of teachers held a second job (Boser and Straus 2014). The survey also shows that SFUSD teachers are considerably more likely to rent than own a home and are considerably more likely to rent than the national sample, a finding consistent with the high property values in the area. More than a third are paying off student loans. On average, teachers report commuting 0.56 hours (or 34 minutes) home, with times ranging from one minute up to three hours with a standard deviation of 26 minutes— similar to the 2016 San Francisco average commute time of 32 minutes (U.S. Census Bureau). Relatively small numbers report receiving financial help from family members other than a spouse/partner (17 percent) or inheriting wealth (7 percent), indicating that family assistance is a relatively rare strategy for making ends meet. Although many teachers (58 percent) have college-educated parents, one-third recall being eligible for free or reduced-price lunch as a child. Lastly, more than a third of teachers (38 percent) indicated that they attended primarily Bay Area schools as a child, suggesting that a sizable share grew up in

the area, consistent with research demonstrating working near "home" is common in the teaching profession (Boyd, Lankford, Loeb, & Wyckoff, 2005; Reininger 2012).

Drawing Connections between Teachers' Financial Situations and Economic Anxiety

The results in Tables 1 and 3 provide evidence that SFUSD teachers face greater economic anxiety than Americans do on average, despite having higher household income and potentially stronger support networks. We find, further, that the specifics of teachers' financial situations significantly predict their economic anxiety.

Results presented in Table 4 treat the components of teachers' financial situations (shown in Table 3) as predictors of the economic anxiety indicators. Because our earlier findings indicate that age is a strong predictor of teachers' economic anxiety, and because the specifics of teachers' financial situations (for example, whether they live with a partner or spouse, or whether they are paying off student loans) can be highly dependent on age, we control for age in these models.

The specifics of teachers' financial situations provide insights into their economic anxiety and its potential drivers. Teachers who are the primary or solo breadwinners are more likely to feel financially anxious and to have difficulty covering housing and unexpected expenses, as are teachers who hold a second job to make ends meet. Teachers who rent, are paying off student loans, are struggling to find affordable child care, or self-report long commutes are also more likely to indicate economic stress, with almost all coefficients statistically significant. We find no relationship between economic anxiety and financial support from family members; this result is reasonable, as receipt of family support could identify highly resourced teachers (as a result of help) or teachers whose financial instability requires help.

We also find evidence that teachers from more advantaged family backgrounds or who are more likely to have a financial support network experience less economic anxiety. Teachers whose parents have higher education levels experience less economic anxiety, although the relationship is only significant when the dependent variable is difficulty paying a $1000 expense. Teachers who attended primarily Bay Area schools are less likely to report economic stress, although the

coefficient is only significant when the dependent variable is frequently feeling financially anxious. Conversely, teachers who come from poorer socioeconomic backgrounds report greater economic anxiety across all three dependent variables. Interestingly, in models where we control for teachers' childhood eligibility for subsidized lunch, all three coefficients for being from the Bay Area are significant and negative. This pattern suggests that it is not simply that Bay Area families tend to be more affluent, but also that having family in the area or familiarity with the region may reduce economic anxiety.

We also consider the possibility that the significant relationships found between teachers' economic anxiety and their current financial situations—household income, home ownership, student loan status, child care costs, and commute—might be driven by teachers' family background, especially their income levels growing up. We estimate models examining these relationships while controlling for teachers' family background and support network (i.e. parental education, free lunch-eligibility as a child, and whether they are from the Bay Area). These results (not shown) are essentially unchanged from those of the models controlling only for age presented in Table 4, providing evidence that the relationships between teachers' current financial situations and their economic anxiety are significant regardless of family background. For all of these results, comparable logit models produce virtually identical patterns to linear probability models.

IMPLICATIONS FOR TEACHER BEHAVIOR AND RETENTION

Our final research question considers how economic anxiety predicts teachers' attitudes and behaviors in ways that could affect their teaching and retention. Evidence from our data suggests substantial consequences of teachers' sense of economic wellbeing. Teachers with high levels of economic anxiety tend to have a lower regard for teaching, lower school attendance, and are more likely to both report plans to resign and ultimately exit the district. However, these teachers are also more likely to express interest in pursuing instructional, school-level, and district-level leadership roles, which are roles with higher salaries. These findings show that the economic wellbeing of teachers predicts not just satisfaction with their job, but also demonstrated behavior. They additionally suggest that economic anxiety does not predict a disinterest with being an educator generally, but rather a dissatisfaction with being a teacher specifically.

Outcomes to answer this research question draw on both survey and administrative data. We construct a variable of teachers' regard for teaching through a principal component analysis of a series of survey questions aimed at measuring teachers' attitudes toward their job. These Likert-scale questions include (a) whether they would be a teacher if they could do it all over again, (b) whether they like being a teacher in SFUSD, (c) whether they like working at their current school, (d) whether they feel good about their performance as a teacher, and (e) whether they are discouraged by the state of the profession. Our measure of teachers' plans for resignation comes from a survey question asking their plans for the following year, which includes options such as "stay in SFUSD" and "retire" in addition to "resign". Our measure of teachers' interest in leadership roles comes from a survey question that asks, among the subset of teachers who do not indicate they either plan to retire in the following year or have been let go, whether they would be interested in moving at some point in the future into instructional, school-level, or district-level leadership positions.

We measure teachers' absences in multiple ways. Using our administrative data on teacher attendance, we construct continuous measures of days missed for any reason, for professional development only, for illness only, and for personal leave or emergency only.[7] Because a number of outliers have especially high absence rates, we exclude teachers who are in the top one percent of our sample for number of days absent from this part of our analysis. We also construct indicators for chronic absence (defined as missing more than 10 days) for any reason, and specifically for illness or personal leave/emergency. We additionally track teachers' administrative records to assess whether, as of April 2018 (two years subsequent to the survey), they transferred to a different school in SFUSD, exited the district for any reason, or exited the district for reasons other than retirement.

Table 5 shows the results of linear probability models, where measures of economic anxiety predict measures of positive regard for teaching, interest in leadership roles, and reported plans to resign, as well as measures of attendance and demonstrated school transfer or district exit.[8] The "mean" row in each panel indicates the mean value of each outcome for our full analytic sample. Each cell shows the estimated coefficient from a separate regression and robust standard

errors are in parentheses. Estimating comparable logit models and models including age as a control variable do not meaningfully change our results.

Table 5 shows that economic anxiety predicts teachers' attitudes about their job and their likelihood of remaining a teacher in SFUSD. Across all three of our economic anxiety variables, economically anxious teachers have a lower regard for teaching and are more likely to plan to resign in the following year. For example, teachers who are frequently anxious have a regard for teaching that is 0.33 standard deviations lower than the overall sample, and nearly 0.5 standard deviations lower than teachers who are not frequently anxious. Frequently anxious teachers are also 67 percent more likely to say they plan to resign relative to the overall sample and 100 percent more likely relative to non-frequently anxious teachers.

One might interpret these findings from negative survey responses as an indication that economic anxiety is associated with an overall disillusionment or disconnection with education generally. However, economically anxious teachers are also more likely to express interest in pursuing a leadership role at the instructional-, school-, or district-level at some point in the future, indicating that they are not willing (or maybe able) to be an educator at the low wage of a teacher, but would be interested in being an educator in a different context. Although the teachers in our sample tend in general to be interested in pursuing such positions (nearly 70 percent indicate interest in at least one of these roles), teachers who are frequently anxious about their financial situations are 12 percentage points more likely to aspire to leadership roles, a difference of 17 percent relative to the overall sample and 19 percent relative to non-frequently anxious teachers. The results are similar though slightly smaller in magnitude for teachers who have difficulty paying an unexpected expense. The association between teachers' difficulty paying housing costs and their leadership aspirations is not significant; however, if we consider teachers' interest in different types of leadership roles separately, these teachers are 8 percentage points and 6 percentage points more likely to be interested in school and district leadership, respectively (both statistically significant). Overall, the percentage increase in teachers' interest in leadership positions associated with economic anxiety is considerably higher for school leadership and district leadership roles (a 65 percent and 40 percent increase above the sample mean, respectively) than for instructional leadership roles (a 15 percent increase above the

sample mean) See Appendix B Table B2 for more details. These findings provide evidence that economic anxiety is not necessarily leading teachers to want to leave the education sector, but it is associated with wanting to leave the relatively low-paying role of teacher. Given that far more educators are teachers than school or district leaders, this desire to move away from teaching may be problematic for schools, even if these teachers seek leadership roles in education.

The administrative data also demonstrate that economic anxiety has potential effects on teacher behavior, in addition to teacher attitudes. Economically anxious teachers miss more days of school and are more likely to be chronically absent. In particular, teachers who are frequently anxious about their financial situation miss 1.6 more days of school, on average—a 15 percent increase over the mean missed days in our sample of teachers. While some of this absenteeism is driven by an increase in professional development, frequent anxiety is also significantly related to increases in days missed for illness and for personal leave. Furthermore, frequently anxious teachers are 12 percentage points more likely to be chronically absent. Our findings are similar for the other measures of economic anxiety: teachers who find it very difficult to cover housing costs miss more total days of school and are significantly more likely to be chronically absent. Both those who struggle with housing costs and unexpected expenses also miss significantly more school due to illness, suggesting that when health problems arise, teachers may lack a financial buffer to support them. Alternatively, this association could reflect a lower level of effort or engagement among teachers with greater financial stress, as Clotfelter et al. (2009) find that sick days appear to be at least partially discretionary.

While we find that economically anxious teachers are significantly more likely to report that they plan to resign, it is possible these are merely pessimistic or angry feelings expressed through our survey, without genuine intention behind them. Yet by analyzing administrative data, we find that by the spring of 2018 (i.e. about two years after the survey), economically anxious teachers are significantly more likely to leave the district, while we find no difference in their likelihood of switching schools within SFUSD. The relationship between economic anxiety and likelihood of district exit for reasons other than retirement is even stronger. For example, excluding retirement, frequently anxious teachers are eight percentage points more likely to leave the

district than less anxious teachers. Given that 12.3 percent of the less anxious teachers depart SFUSD in this period, this represents a difference in turnover of 65 percent.

It is possible that our construct of economic anxiety is instead a proxy for a different teacher characteristic or is related to an omitted variable that similarly predicts teacher behavior and retention. Given our data and research design, we are unfortunately unable to identify true causal relationships driving these outcomes. For example, economic anxiety could be related to teachers' overall dissatisfaction with living in the Bay Area or commitment to the San Francisco community, which could be the true underlying driver behind their decision to stay in SFUSD. Alternatively, economic anxiety could be related to teachers' career ambitions and financial goals, which affects their attitudes toward their jobs and their retention in the profession. Ideally, we would be able to rule out such potential omitted variables by identifying a comparable control group in another city or another profession, or by supplementing our analysis with richer data on teacher characteristics and attitudes. Unfortunately, these data are not available to us. That said, we do examine whether the observed relationships between teachers' behavior and retention and their economic anxiety hold when controlling for other variables that could plausibly influence their attitudes toward their profession and desire to remain in it. Specifically, we estimate supplemental models predicting teacher attendance and district exit, but controlling for teachers' experience, age, whether they are from the Bay Area, and their career aspirations (measured as their reported interest in instructional or administrative leadership roles). In the case of teachers' career aspirations particularly, this construct is inherently interrelated with teachers' behaviors and retention, so we acknowledge that it can potentially be an outcome in and of itself (as we model and describe above), or a mediator. None of these alternative specifications meaningfully change our results, suggesting that potential explanatory variables examining experience, social support, and career ambition cannot explain away the relationship between economic anxiety and behavior and retention outcomes. See Appendix B for results of supplemental models.

DISCUSSION

Teaching is one of the most geographically dispersed occupations. Where there are children, teachers are in demand. Substantial research has identified the shortage of teachers in areas producing few college graduates and in high-poverty areas with few college-educated workers

(Lankford, Loeb, & Wyckoff, 2002; Boyd, Lankford, Loeb, & Wyckoff, 2005). This study is the first that we know of assessing the difficulty for teachers working at the other extreme – in areas of high and increasing wealth, in which high property values can limit quality of life and create economic anxiety. These areas often have bimodal income distributions, so while the market for housing is out of reach for teachers, high-poverty enclaves have schools in need of strong teachers.

We find that teachers in San Francisco experience far greater economic anxiety than other American adults, even without restricting the national sample to those who are employed. They are also far more likely to rent, far less likely to own a home, and have far longer commutes than other workers. These experiences appear to create economic anxiety, especially for younger teachers and for those with weaker local networks. The higher levels of economic anxiety among younger teachers are concerning because they suggest that the pipeline of new teachers may be facing an added deterrent. Attrition because of retirement is looming—in SFUSD and more broadly—and a strong labor market for college graduates is pulling potential teachers to other professions (Darling-Hammond and Shields 2016; Kraft et al. 2018). High living costs and the financial anxiety they create may further reduce the supply of new teachers. Financial anxiety is particularly great for teachers in schools serving large proportions of black students, at least in part because those schools are located in areas that are farther from teachers' residences. To the extent that these schools have the greatest need for teachers, reducing economic anxiety may be an important hurdle to overcome in reducing the turnover rate and increasing the supply of teachers to these schools. This type of disparity in economic anxiety may also reinforce trends identified by Boyd et al. (2005) about teachers' preferences for working in schools that are geographically proximate to their childhood homes or share similar characteristics with those schools.

We also find evidence that teachers' financial anxiety is associated with their job performance. Teachers reporting greater economic anxiety also report that they have a lower regard for their job and are more likely to be chronically absent from school. Teacher absenteeism can, in turn, meaningfully hurt student learning (Miller, Murnane, & Willet, 2008; Clotfelter, Ladd, Vigdor 2009). These findings appear consistent with data from the 2015-16 National Teacher and

Principal Survey, which asks teachers whether they are satisfied with their teaching salary along with multiple questions about job satisfaction. Teachers who were dissatisfied with their salary were more likely to "think about transferring to another school" (37.9 percent compared to 23.4 percent for teachers satisfied with their salary), more likely to "think about staying home from school because I'm just too tired to go" (30.8 percent compared to 19.5 percent), and more likely to feel they had less enthusiasm relative to when they began teaching (51.9 percent compared to 36.6 percent). Overall, 54.8 percent of teachers were dissatisfied with their teaching salary (U.S. Department of Education).

Teachers' economic anxiety predicts not only their stated plans to leave their teaching jobs, but also their demonstrated exit from the district in as few as two years after completing our survey. That their economic anxiety does not predict school transfer suggests that, for these teachers, switching to another school within the district does not appear to be an appealing alternative that might prevent them from leaving altogether. Additionally, the stronger relationship between economic anxiety and non-retirement exit indicates that early retirement is not the main driver of this association, and that earlier-career teachers—for whom economic anxiety is higher on average in the first place—may be more responsive to financial stress in their decision to stay in their jobs. We unfortunately do not have data on where departing teachers go, so it remains an open question whether departing teachers ultimately leave to work in other districts or exit the profession entirely.

Although we find that economically anxious teachers are more likely to leave their jobs in SFUSD, we also find evidence that they are not leaving because they no longer want to be an educator. They are more likely to have interest in pursuing educational leadership roles at some point in the future than are teachers with less economic anxiety, suggesting that economic anxiety does not predict teachers' disengagement with education in general. School and district leadership roles are likely to come with a considerable pay differential over classroom teacher salaries. For example, according to 2018-19 SFUSD salary schedules, a teacher with a bachelor's degree and thirteen years of service earns approximately $72,000, while the lowest potential salary for an Assistant Principal would be $106,000. We cannot know for certain whether this pay increase explains the differential levels of interest in leadership positions among

economically anxious teachers; however, the magnitude of the salary difference suggests this may be a relevant consideration for teachers who feel underpaid but remain passionate about education.

Our data do not allow us to estimate causal pathways; however, the associations we find between elements of teachers' financial situations and their economic anxiety offer insights into ways districts and policymakers may better support teachers. Raising teacher salaries overall is likely the most direct approach to addressing financial insecurity, though the increase necessary may be politically prohibitive. Alternative strategies that more specifically target the conditions that teachers struggling the most face are worthy of consideration, such as locating affordable housing closer to schools, offering housing stipends or low-cost loans, or making financial crisis grants available—alternatives to the support networks that some teachers lack. These and similar strategies have been employed to help low-income populations more generally, but their relevance to San Francisco's teachers highlights a more general point. Several middle-income professions—particularly those in human services—must be as geographically dispersed as their clientele. The Bay Area's affordability crisis has long been a topic of discussion, but its reach into the lives of the supposedly middle-class has only been more recently recognized. And yet, the Bay Area is likely to be just the leading edge of this problem, not its limit, as other cities with booming economic growth face steeply increasing costs of living. The issue of economic anxiety may plague educators acutely, but not uniquely.

The acuteness of this problem for educators, however, as well as its implications for the lives of the next generation, deserves special attention. While our analysis focuses on teachers who live and work in a high-cost urban area, there are indications that even across broader contexts, teachers' economic wellbeing does not follow the patterns of middle-income workers overall. According to the General Social Survey, which tracks national attitudes and beliefs, in the years following the Great Recession, the percentage of teachers who believed that their financial situation was improving "during the last few years" stayed relatively stable, hovering between 27 percent to 38 percent. On the other hand, among employed respondents with a bachelor's degree or higher who were not teachers, this percentage steadily increased, from 37 percent in 2010 to 53 percent in 2016. These statistics suggest that even outside the context of high living and

housing costs, the economic landscape for teachers is not keeping pace with that for other middle-income professionals.

Finally, rather than providing a complete picture of the challenges teachers face, our research raises additional questions about the nuances of teachers' economic wellbeing and the ways it might be improved. We look at average trends across all SFUSD teachers regardless of where they live, recognizing that doing so might mask variation across teachers' residential neighborhoods that could affect their quality of life, feelings of housing security, and satisfaction with their financial position. Additionally, more years of data could shed light on shifts in wellbeing over time and responses to targeted interventions, while research looking at teachers' experiences in other districts and states could provide insight into the ways in which their experience is generalized or not across geographic context. Better understanding these contextual differences that make teachers feel more or less financially secure could help ensure a supply of teachers everywhere that students need them.

[1] The Marketplace Edison Research Survey was conducted through a combination of online and telephone (both landline and cell) interviews and is representative of Americans 18 and older (Marketplace staff, 2016).

[2] The first question's answer options include "I am frequently anxious about my financial situation," "I am sometimes anxious about my financial situation," "I am rarely anxious about my financial situation," "I am never anxious about my financial situation," and "don't know." The second question's answer options include "very easy," "somewhat easy," "somewhat difficult," "very difficult," "don't know," and "I don't currently have rent or mortgage payments to make." The third question's answer options include "not at all difficult," "somewhat difficult," "very difficult," and "don't know."

[3] These inequalities are all significant at the $p<0.001$ level.

[4] Because not all 2,266 teachers in our sample responded to each of our three economic anxiety questions, the sample size varies across models depending on the dependent variable. We deal with the limited degree of missing data on independent variables by including covariate missing flags. See Appendix A for more detail.

[5] We estimate alternative models for racial shares of the school population in which we control for the FRPL-eligible share of the student population. The results of these models are effectively the same as those we report, with the exception that the coefficient on the share of Black students when predicting frequent financial anxiety is less precisely estimated and no longer statistically significant ($\beta=0.288$, $\sigma=0.170$).

[6] The precise median income for workers with a Bachelor's degree in the San Francisco-Oakland-Hayward metropolitan area was $66,506 in 2016, compared to $57,109 statewide. The salary premium for Bay Area workers is even higher among those with a graduate or professional degree, at $92,767 compared to $80,616 statewide.

[7] Our data tracks ten different reasons a teacher might be absent: bereavement, illness, jury duty, military leave, non-service, administrative leave, personal leave/emergency, professional development/permission day, special assignment, and subpoena.

[8] In addition to our three primary economic anxiety variables, we create a composite index measure of economic anxiety constructed using principal components factor analysis, in order to assess the variables' collective predictive power in addition to their individual associations with teacher outcomes. We estimate all models shown in Table 5 using this index as the explanatory variable and find that it demonstrates predictive power for all outcomes with the exception of the number of days absent due to professional development and the likelihood of school transfer, consistent with the results of the individual economic anxiety variables. These results are available by request.

By construction, the mean of the index variable is 0 and the standard deviation is 1. A principal components factor analysis of the three economic anxiety variables yielded one factor with an eigenvalue greater than 1 (eigenvalue = 1.87). This factor variable accounts for 62.2 percent of the total variance of the three variables. Constructing an index using principal factors analysis yields similar results.

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TABLE 1: Teacher Perceptions of Their Own Financial Insecurity

		(1)	(2)	(3)	(4)
		SFUSD Teachers		National Survey	
				All	Employed
Topic	Prompt	n	%	%	%
Current financial situation	I am frequently anxious about my current financial situation	981	48%	17%	17%
	I am sometimes anxious about my current financial situation	751	37%	44%	46%
Monthly housing costs (mortgage/rent)	Owners: Finds it "very difficult" to cover	97	13%	3%	3%
	Renters: Finds it "very difficult" to cover	322	27%	8%	4%
	Owners: Finds it "somewhat difficult" to cover	268	35%	14%	12%
	Renters: Finds it "somewhat difficult" to cover	456	39%	26%	26%
Unexpected expenses	Would find it "very difficult" to cover unexpected $1000 expense	798	39%	26%	22%
	Would find it "somewhat difficult" to cover unexpected $1000 expense	804	39%	32%	33%
Access to financial support	If unable to pay the $1000, does *not* have friend/family member who could help	445	21%	50%	46%
	If unable to pay the $1000, does *not know* whether a friend/family member could help	278	13%	1%	1%

Notes: Total number of SFUSD teacher survey respondents is 2,266, though the number of respondents for each survey question varies by question. The percentages shown for SFUSD teachers are based on the subgroup of respondents who answered the given question. The data from the national Marketplace/Edison Research Survey is sourced from the February 2016 survey and the total number of respondents is 1,012. The percentages shown in column (4) are for the subset of national respondents who were employed at the time of the survey.

TABLE 2: Likelihood of Financial Stress by Teacher Characteristic, Linear Probability Models

		(1) Pr(frequently anxious)	(2) Pr(very difficult, housing)	(3) Pr(very difficult, $1000)
i. Race (ref group: White)	Black	-0.0358	0.0298	0.216***
		(0.0563)	(0.0477)	(0.0551)
	Asian	-0.144***	-0.0356	-0.0380
		(0.0269)	(0.0216)	(0.0263)
	Hispanic/Latino	0.000961	0.0116	0.137***
		(0.0351)	(0.0292)	(0.0350)
	Ntv. Amer/Multi-racial	0.0259	-0.0379	0.0618
		(0.0816)	(0.0630)	(0.0831)
	Decline to state	0.0115	0.0279	0.0169
		(0.0383)	(0.0324)	(0.0372)
ii. Gender	Female	0.0297	0.0159	0.0566*
		(0.0248)	(0.0200)	(0.0240)
iii. Age	Age (in years)	-0.00589***	-0.00370***	-0.00737***
		(0.000890)	(0.000709)	(0.000851)
iv. Experience in SFUSD (ref group: 20+ yrs)	1-2 years	0.255***	0.156***	0.239***
		(0.0393)	(0.0332)	(0.0390)
	3-5 years	0.237***	0.135***	0.205***
		(0.0328)	(0.0263)	(0.0320)
	6-10 years	0.175***	0.0912***	0.172***
		(0.0339)	(0.0261)	(0.0328)
	11-20 years	0.122***	0.0927***	0.104***
		(0.0305)	(0.0231)	(0.0290)
v. Teacher credential	Multi-subject	-0.0484	0.00593	-0.0803**
		(0.0314)	(0.0255)	(0.0308)
	Single subject	-0.0759*	0.00720	-0.149***
		(0.0372)	(0.0302)	(0.0360)
	ELL	0.0483*	-0.00231	0.0532*
		(0.0225)	(0.0184)	(0.0217)
	Special Ed	0.00903	0.0267	0.0114
		(0.0366)	(0.0300)	(0.0364)
	English	0.0218	-0.0229	-0.0136
		(0.0356)	(0.0287)	(0.0339)
	Math	-0.0463	-0.00670	-0.0353
		(0.0380)	(0.0309)	(0.0355)
	Science	-0.0289	-0.0194	-0.0258
		(0.0438)	(0.0351)	(0.0408)
vi. School level (ref group: Elem. School)	PreK/Early Ed	-0.120*	-0.0452	0.0701
		(0.0595)	(0.0459)	(0.0619)
	K-8 School	-0.00152	0.0507	0.119**
		(0.0436)	(0.0381)	(0.0440)
	Middle School	0.00335	0.0146	0.00451
		(0.0330)	(0.0276)	(0.0324)
	High School	-0.0444	-0.0352	-0.0854***
		(0.0266)	(0.0210)	(0.0254)
	Admin/Other	-0.0740	0.0247	0.0852
		(0.0819)	(0.0719)	(0.0839)
vii. Student population (race)	Share Black	0.289*	0.113	0.326*
		(0.130)	(0.111)	(0.130)
	Share Hisp/Latino	0.0522	0.0509	0.0795
		(0.0833)	(0.0696)	(0.0810)
	Share Asian	-0.0514	-0.0415	-0.104
		(0.0788)	(0.0645)	(0.0764)
	Share other race (non-White)	-0.754	-0.0919	-0.519
		(0.391)	(0.347)	(0.401)
viii. Student population (poverty)	Share FRPL-eligible	0.0720	0.0362	0.0672
		(0.0625)	(0.0513)	(0.0604)
Number of observations		2055	2085	2043

* p<0.05 ** p<0.01 *** p<0.001

Notes: Table 2 shows the results of linear probability models, where the dependent variable is a dummy for a respondent selecting the financial anxiety-related prompt shown. The subsections of Table 2 (i-viii) represent separate regression models. Robust standard errors are shown in parentheses. Missing flags for explanatory variables are used in all regressions to keep the sample size consistent across models for each dependent variable. R-squared's available upon request.

TABLE 3: Teachers' Self-Reported Financial Profile and Access to Outside Support

		(1)	(2)	(3)	(4)
		SFUSD Teachers		National Survey	
				All	Employed
Topic		n	% or mean	%	%
Total household income	Under $50,000	206	10.0%	40%	30%
	$50,000-$74,999	691	33.5%	18%	20%
	$75,000-$99,999	406	19.7%	16%	21%
	$100,000-$149,999	526	25.5%	10%	13%
	$150,000-$250,000	181	8.8%	7%	9%
	Over $250,000	52	2.5%		
Sources of household income	SFUSD income is majority of household income	1238	69.5%	n/a	n/a
	Does not live with spouse/partner	790	38.1%	35%	34% †
	Has a second job to help make ends meet	357	20.0%	17%	17% †
	Is financially supported by family members (other than partner/spouse)	296	16.6%	n/a	n/a
	Have or will receive inheritance or other wealth	122	6.8%	25%	24% †
Home ownership	Owns a home	766	36.8%	63%	67%
	Rents a home	1185	56.9%	28%	26%
Student loans	Is currently paying off student loans	651	36.5%	18%	24%
Child care costs	Struggles to find affordable child care	181	10.2%	n/a	n/a
Commute time	Self-reported commute time home (in hrs)	1911	0.56	n/a	n/a
Family background and nearby network	At least one parent has BA or higher	1208	58.1%	n/a	n/a
	Teacher was FRPL-eligible as child	619	33.5%	n/a	n/a
	Teacher attended primarily Bay Area schools as child	871	56.5%	n/a	n/a

Notes: Total number of SFUSD teacher survey respondents is 2,266, though the number of respondents for each survey question varies by question. The percentages shown for SFUSD teachers are based on the subgroup of respondents who answered the given question. The data from the national Marketplace/Edison Research Survey is sourced from the February 2016 survey and the total number of respondents is 1,012. The percentages shown in column (4) are for the subset of national respondents who were employed at the time of the survey.

† Difference in question wording between teacher survey and national survey. For example, the percentage of respondents who do not live with a spouse or partner is defined for SFUSD teachers as those who did not indicate that they live with a partner or spouse; the percentage for the national survey is sum of respondents who say they are single or divorced.

TABLE 4: Likelihood of Financial Stress, by Teacher Financial Profile and Access to Outside Support

		LPM Coefficients		
		(1)	(2)	(3)
	Prompt	Pr(frequently anxious)	Pr(very difficult, housing)	Pr(very difficult, $1000)
Sources of household income	SFUSD salary is majority of household income	0.0727**	0.0542*	0.103***
		(0.0261)	(0.0218)	(0.0254)
	Does not live with spouse/partner	0.124***	0.101***	0.164***
		(0.0225)	(0.0191)	(0.0220)
	Has second job to help make ends meet	0.209***	0.179***	0.170***
		(0.0279)	(0.0278)	(0.0291)
	Is financially supported by family members (other than partner/spouse)	-0.0573	-0.0241	-0.0425
		(0.0319)	(0.0267)	(0.0316)
	Have or will receive inheritance or other wealth	-0.234***	-0.146***	-0.221***
		(0.0429)	(0.0286)	(0.0385)
Home ownership	Rents (relative to owns)	0.235***	0.126***	0.229***
		(0.0245)	(0.0195)	(0.0234)
Student loans	Is currently paying off student loans	0.130***	0.0872***	0.202***
		(0.0261)	(0.0234)	(0.0261)
Child care costs	Struggles to find affordable child care	0.0897*	0.0911*	0.0730
		(0.0386)	(0.0372)	(0.0400)
Commute time	Self-reported commute time home (in hrs)	0.114***	0.0554*	0.122***
		(0.0275)	(0.0228)	(0.0267)
Family background and nearby network	At least one parent has BA or higher	-0.0120	-0.0169	-0.0476*
		(0.0223)	(0.0185)	(0.0217)
	Teacher was FRPL-eligible as child	0.0713**	0.0694***	0.0903***
		(0.0247)	(0.0208)	(0.0241)
	Teacher attended primarily Bay Area schools as child	-0.0632*	-0.0414	-0.0509*
		(0.0255)	(0.0213)	(0.0251)
No. of observations		2055	2085	2043
Control for age		Yes	Yes	Yes

* p<0.05 ** p<0.01 *** p<0.001

Notes: Each cell is a coefficient (with standard error in parenthes) from a separate regression, where the dependent variable is a dummy for a respondent indicating that they feel "frequently anxious" about their financial situation, that it is "very difficult" to pay their monthly rent or mortgage, or that it would be "very difficult" to cover an unexpected $1000 expense. Missing flags for explanatory variables are used in all regressions to keep the sample size consistent across models for each dependent variable. R-squared's available upon request.

TABLE 5: Association with teachers' attendance, regard for teaching, and turnover

Panel A: Attendance

	(1)	(2)	(3)	(4)	(5)	(6)
	Days absent				Chronically absent (10 days)	
	All reasons	PD only	Illness only	Personal leave, emergency only	All reasons	Illness, personal leave, emergency only
Frequently anxious	1.664***	0.322*	0.968***	0.582**	0.116***	0.0743***
	(0.359)	(0.156)	(0.264)	(0.184)	(0.0219)	(0.0172)
Very difficult to pay housing cost	0.992*	0.105	0.621*	0.293	0.0880***	0.0573**
	(0.441)	(0.189)	(0.302)	(0.244)	(0.0267)	(0.0220)
Very difficult to pay unexpected $1000	0.786*	0.0675	0.735**	0.189	0.0695**	0.0488**
	(0.366)	(0.160)	(0.265)	(0.184)	(0.0226)	(0.0180)
Mean	11.06	3.49	4.06	2.93	0.46	0.19
Number of observations	2244	2244	2244	2244	2266	2266

Panel B: Regard for teaching and turnover

	(7)	(8)	(9)	(10)	(11)	(12)
				As of Spring 2018, probability of:		
	Positive regard for teaching	Pr(interest in leadership role)	Pr(plan to resign)	School transfer	District exit	District exit, excl. retirement
Frequently anxious	-0.330***	0.118***	0.0406***	0.00212	0.0431*	0.0830***
	(0.0437)	(0.0206)	(0.0106)	(0.0144)	(0.0179)	(0.0164)
Very difficult to pay housing cost	-0.337***	0.0474	0.0502***	0.00633	0.0645**	0.0796***
	(0.0561)	(0.0244)	(0.0152)	(0.0177)	(0.0229)	(0.0216)
Very difficult to pay unexpected $1000	-0.184***	0.101***	0.0256*	0.0221	0.0448*	0.0681***
	(0.0457)	(0.0208)	(0.0112)	(0.0151)	(0.0187)	(0.0172)
Mean	0.00	0.69	0.06	0.12	0.21	0.17
Number of observations	2143	2026	2087	2266	2266	2266

* p<0.05 ** p<0.01 *** p<0.001

Notes: Each cell is a coefficient (with robust standard error in parenthes) from a separate regression. The continuous outcome variables for columns (1) through (4) have the following standard deviations: 8.1 for all reasons, 3.5 for PD only, 5.9 for illness, and 4.2 for personal leave. Missing flags for explanatory variables are used in all regressions to keep the sample size consistent across models for each dependent variable. R-squared's available upon request.

APPENDIX A

Table A1 presents descriptive statistics on our survey respondents, who make up our analytic sample. Column (1) shows the mean, and where applicable, the standard deviation for the various teacher and school characteristics that we use as explanatory variables in Table 2. Column (2) shows the same for the full sample of non-charter, public school teachers in SFUSD in 2016. Across all variables, the means for the two samples are not significantly different.

In order to keep sample sizes consistent across the many regression models that include different covariates, we use missing flags for our explanatory variables; sample sizes for each model, then, are determined by the number of non-missing responses to the dependent measure. For the regression results presented in Table 2, there is minimal missingness, since all explanatory variables come from administrative data. Missingness is more prevalent in the models shown in Tables 4 and 5, where the covariates are from survey data. For nearly all models shown in Table 4 in which the covariate comes from survey data, the missing flag is significant and negative, indicating that in general, those teachers who did not answer those questions are less likely to feel financially insecure. In Table 5, the missingness is less systematic, although those teachers who did not answer the questions on economic anxiety are less likely to have a high regard for teaching. Although typically patterns of non-random missingness should spark concern, in our case we suspect that, if anything, these patterns mean our results underestimate the relationships of interest.

TABLE A1: Descriptive Statistics on Teacher Sample

		(1) Analytic Sample	(2) All Teachers 2016
		Mean (Std Deviation)	Mean (Std Deviation)
i. Race	Black	0.04	0.05
	White	0.46	0.46
	Asian	0.25	0.24
	Hispanic/Latino	0.13	0.14
	Ntv. Amer/Multi-racial	0.02	0.02
	Decline to state	0.10	0.10
ii. Gender	Female	0.73	0.70
iii. Age	Age (in years)	42.73	43.48
		(12.21)	(12.43)
iv. Experience in SFUSD	1-2 years	0.12	0.11
	3-5 years	0.20	0.19
	6-10 years	0.18	0.18
	11-20 years	0.28	0.29
	20+ years	0.22	0.23
v. Teacher credential	Multi-subject	0.54	0.51
	Single subject	0.34	0.34
	ELL	0.53	0.52
	Special Ed	0.16	0.15
	English	0.14	0.13
	Math	0.11	0.10
	Science	0.08	0.08
vi. School level	PreK/Early Ed	0.04	0.06
	Elementary School	0.44	0.41
	K-8 School	0.08	0.08
	Middle School	0.15	0.15
	High School	0.28	0.28
	Admin/Other	0.02	0.03
vii. School's student population	Share Black	0.09	0.10
		(0.11)	(0.11)
	Share White	0.14	0.14
		(0.15)	(0.15)
	Share Hisp/Latino	0.31	0.32
		(0.23)	(0.23)
	Share Asian	0.39	0.39
		(0.25)	(0.25)
	Share other race (non-White)	0.06	0.06
		(0.033)	(0.032)
	Share FRPL-eligible	0.57	0.57
		(0.20)	(0.20)
Number of observations		2266	3281

Notes: Both the analytical sample and the full sample of teachers do not include charter school teachers.

APPENDIX B

Table B1 presents the results of our supplemental models examining the relationship between economic anxiety and teacher attitudes, attendance, and turnover, with the inclusion of additional controls representing potential mediators—specifically, teachers' experience, age, whether the are from the Bay Area, and their interest in leadership roles. For simplicity, we model economic anxiety using an index variable constructed using principal components analysis on our three main economic anxiety variables used throughout the paper (this index variable is described in more detail in footnote 8 of the main paper). The dependent variables are consistent with those included in Table 5. Note that leadership aspirations and interest in a leadership role are the same variable and appear both as an outcome (column 8) and a control variable. As discussed in the main text, career aspirations are inherently interrelated with teacher attitudes and behaviors and we are agnostic as to the direction or relative strength of these relationships. As such, we see interest in leadership both as a relevant outcome for teachers and as a potential mediator for related outcomes. Note also that in the teacher survey, the question regarding teachers' interest in leadership roles is a sub-question of their plans for the following year, which includes the option of resignation. Because of the nested structure of these questions, we do not estimate a model where the outcome is plans for resignation that also includes leadership aspirations as a control variable (column 9).

The results in Table B1 indicate that economic anxiety is still strongly predictive of teachers' attitudes and behaviors, even when controlling for these potential omitted variables or mediators. For the most part, the magnitude of the relationships is consistent across specifications, although controlling for experience increases the association between economic anxiety and attendance. Additionally, controlling for age or experience decreases the magnitude of the relationship between economic anxiety and district exit (with or without retirement), though the majority of the associations remain statistically significant.

We also take a more detailed look at the association between economic anxiety and teachers' interest in leadership roles by examining as separate outcomes teachers' interest in instructional, school, and district leadership. The results are shown in Table B2. We find that economic anxiety more strongly predicts interest in school leadership than in instructional leadership and, depending on the measure of economic anxiety used, is slightly more predictive

of district leadership than instructional leadership. It is worth noting that school- and district-level leadership positions generally have a larger pay increase relative to classroom teaching than insturctional leadership roles, suggesting that the increase in compensation may play a role in teachers' stated interests. As we do in Table B1, we estimate supplemental models that control for potentially relevant confounders or mediators (Table B2, panel B). Our results are largely consistent across specifications.

TABLE B1: Comparing models of association between economic anxiety index and teachers' attendance, regard for teaching, and turnover

Panel A: Attendance

		(1)	(2)	(3)	(4)	(5)	(6)
		Days absent				Chronically absent (10 days)	
	Specification	All reasons	PD only	Illness only	Personal leave, emergency only	All reasons	Illness, personal leave, emergency only
Economic anxiety index (using principal component analysis)	No controls	0.704***	0.105	0.476***	0.208*	0.0564***	0.0358***
		(0.179)	(0.0790)	(0.127)	(0.0936)	(0.0110)	(0.00898)
	Control for experience in SFUSD	0.823***	0.121	0.576***	0.187	0.0659***	0.0430***
		(0.182)	(0.0797)	(0.128)	(0.0971)	(0.0112)	(0.00918)
	Control for age	0.711***	0.0433	0.539***	0.168	0.0583***	0.0412***
		(0.181)	(0.0798)	(0.128)	(0.0951)	(0.0112)	(0.00915)
	Control for whether Bay Area native	0.710***	0.104	0.472***	0.214*	0.0571***	0.0365***
		(0.179)	(0.0791)	(0.128)	(0.0939)	(0.0110)	(0.00899)
	Control for leadership aspirations	0.626***	0.0590	0.481***	0.169	0.0528***	0.0354***
		(0.180)	(0.0801)	(0.124)	(0.0974)	(0.0111)	(0.00897)
Mean		11.06	3.49	4.06	2.93	0.46	0.19
Number of observations		2244	2244	2244	2244	2266	2266

Panel B: Regard for teaching and turnover

		(7)	(8)	(9)	(10)	(11)	(12)
					As of Spring 2018, probability of:		
	Specification	Positive regard for teaching	Pr(interest in leadership role)	Pr(plan to resign)	School transfer	District exit	District exit, excl. retirement
Economic anxiety index (using principal component analysis)	No controls	-0.170***	0.0533***	0.0234***	0.00510	0.0279**	0.0435***
		(0.0225)	(0.0104)	(0.00574)	(0.00735)	(0.00927)	(0.00848)
	Control for experience in SFUSD	-0.163***	0.0331**	0.0156**	-0.000541	0.0160	0.0220**
		(0.0230)	(0.0104)	(0.00564)	(0.00749)	(0.00916)	(0.00813)
	Control for age	-0.165***	0.0358***	0.0170**	0.0000692	0.0250**	0.0272**
		(0.0230)	(0.0104)	(0.00575)	(0.00750)	(0.00929)	(0.00827)
	Control for whether Bay Area native	-0.169***	0.0540***	0.0229***	0.00553	0.0271**	0.0427***
		(0.0227)	(0.0105)	(0.00570)	(0.00738)	(0.00926)	(0.00848)
	Control for leadership aspirations	-0.184***	—	—	0.00109	0.0370***	0.0439***
		(0.0226)	—	—	(0.00749)	(0.00903)	(0.00855)
Mean		0.00	0.69	0.06	0.12	0.21	0.17
Number of observations		2143	2026	2087	2266	2266	2266

* p<0.05 ** p<0.01 *** p<0.001

Notes: Each cell is a coefficient (with robust standard error in parenthes) from a separate regression. The continuous outcome variables for columns (1) through (4) have the following standard deviations: 8.1 for all reasons, 3.5 for PD only, 5.9 for illness, and 4.2 for personal leave. Missing flags for explanatory variables are used in all regressions to keep the sample size consistent across models for each dependent variable. R-squared's available upon request.

TABLE B2: Economic anxiety and teachers' interest in various types of leadership roles

Pand A: Across measures of economic anxiety

	(1)	(2)	(3)	(4)
	Probability of interest in:			
	Any leadership role	Instructional leadership role	School leadership role	District leadership role
Frequently anxious	0.118***	0.0950***	0.145***	0.109***
	(0.0206)	(0.0214)	(0.0192)	(0.0202)
Very difficult to pay housing cost	0.0474	0.0498	0.0814**	0.0553*
	(0.0244)	(0.0255)	(0.0247)	(0.0252)
Very difficult to pay unexpected $1000	0.101***	0.0847***	0.0969***	0.0791***
	(0.0208)	(0.0218)	(0.0204)	(0.0211)
Economic anxiety index (using principal component analysis)	0.0533***	0.0453***	0.0654***	0.0507***
	(0.0104)	(0.0109)	(0.00977)	(0.0102)
Mean	0.69	0.64	0.23	0.27
Number of observations	2026	1998	1946	1945

Pand B: Comparing model specifications using economic anxiety index as explanatory variable

		(5)	(6)	(7)	(8)
		Probability of interest in:			
	Specification	Any leadership role	Instructional leadership role	School leadership role	District leadership role
Economic anxiety index (using principal component analysis)	No controls	0.0533***	0.0453***	0.0654***	0.0507***
		(0.0104)	(0.0109)	(0.00977)	(0.0102)
	Control for experience in SFUSD	0.0331**	0.0252*	0.0518***	0.0402***
		(0.0104)	(0.0108)	(0.00991)	(0.0103)
	Control for age	0.0358***	0.0275*	0.0521***	0.0406***
		(0.0104)	(0.0108)	(0.00979)	(0.0103)
	Control for whether Bay Area native	0.0540***	0.0454***	0.0663***	0.0509***
		(0.0105)	(0.0109)	(0.00978)	(0.0102)

* p<0.05 ** p<0.01 *** p<0.001

Notes: Each cell is a coefficient (with robust standard error in parenthes) from a separate regression. Missing flags for explanatory variables are used in all regressions to keep the sample size consistent across models for each dependent variable. R-squared's available upon request.