

Placing the Production of Investment Returns: An Economic Geography of Asset Management in Public Pension Plans

ABSTRACT. Public pension funds are engulfed in a severe funding crisis. At stake is the financial stability of state and local governments as well as the welfare of over 30mn public sector employees. Although cutting-back on external asset management expenses could help save billions in tax-payers' money and improve public pension funding, recent research suggests that public pensions remain predominantly outsourced and keep paying high fees to private sector asset managers. This article examines why public pension funds outsource their asset management functions. It relies on mixed-methods juxtaposing positivist and reflexive approaches. The study relies on an econometric analysis of a unique panel dataset of 21 state pension plans. The model tests specific relationships between levels of outsourcing and the organizational, economic and political context in which these plans are embedded. The results indicate that outsourcing is linked to plans' i) investment return targets ii) allocation to non-domestic and private market investments iii) local financial sector vibrancy and iv) proximity to a leading financial center. These quantitative results are enriched with insights from 37 semi-structured interviews with investment professionals employed by a top-performing state pension plan. The interviews help shed further light on how distance, politics and governance affect pension plans' outsourcing strategies. This article contributes new insights on context to economic geographic literature on pension decision-making as well as new perspectives to financial geography literature on the role of place and distance in institutional asset management.

Key words: financial geography, insourcing, asset management, international financial centers, outsourcing, state pension plans, pension decision making.

JEL classifications: G11, G17, G23, H11, H55, H75

Introduction

An increasing number of employers around the world are phasing out their Defined Benefit (DB) pension systems for the more flexible and individualistic Defined Contribution (DC) plans (Dixon, 2012). In DC plans, financial market investment risks are borne by employees rather than by employers. As such, retirement benefits are subject to uncertainty and require plan participants to be more involved in retirement planning and decision-making. By contrast, in DB plans employers commit to deliver members a predetermined retirement income through a combination of contributions and investment returns. Overall, the switch from DB to DC is largely motivated by employers' wish to offload uncertain and potentially expensive liabilities. In the United States, while the private sector has embraced the DC model, state and local government workers are still predominantly covered by DB systems (Novy-Marx and Rauh, 2011). In 2016 state and local pension plans collectively managed 3.86tn USD on behalf of over 31.2mn members (Vidal, 2017)¹.

¹ This figure comprises 14.7mn active participants, 10.3mn beneficiaries and 6.2mn of other members including inactive vested and inactive non-vested participants.

Almost fully funded in early 2000's (Munnell, Aubry and Medenica, 2013), U.S. public pension systems reached a staggering 3.23tn USD of unfunded liabilities in 2008 (Novy-Marx and Rauh, 2009). This dramatic shortfall has been attributed to a variety of factors. The financial market downturns of 2001, corresponding to the bursting of the .com bubble, and the 2008-09 global financial crisis (GFC) induced significant write-downs on the financial assets held by public pension plans. Investment losses were aggravated by sustained under-contributions from sponsors attempting to juggle falling tax revenues as the GFC morphed into economic recession (Munnell, Aubry and Cafarelli, 2015).

High external investment management fees uncompensated by investment performance have also contributed to plans' chronic underfunding. Hooke and Walters (2013) calculated that in 2012 the largest 49 state pension plans collectively paid over 9bn USD in investment fees to private contractors. Their study showed that plans paying the highest fees to external providers were consistently underperforming their peers. Interestingly, MacIntosh and Scheibelhut's (2012) showed that pension plans retaking control over their investment functions via insourcing experienced improved net investment performance. These results echo the literature questioning financial intermediaries' ability to deliver investment returns that compensate for their high costs (Lakonishok, Shleifer and Vishny, 1992; Malkiel, 2013; Jenkinson, Jones and Martinez, 2016).

Although insourcing may offer compelling advantages, academic understanding of how it is to be implemented in public pension systems remains limited. Notwithstanding a significant body of research on insourcing, outsourcing and offshoring amongst institutional investors (Clark, 2008; Dixon, 2012; Dixon and Monk, 2014; Clark and Monk, 2017) and on pension decision-making (Clark, Caerlewy-Smith, and Marshall 2006; Hebb and Beeferman, 2009; Strauss, 2009; Clark, Strauss and Knox-Hayes, 2012) there is a striking absence of scholarship, in economic geography and beyond, that looks at why public pension plans in- or outsource the management of their retirement assets. This article addresses the gap.

Whereas economic geographers and behavioral economists have resolutely overturned neoclassical assumptions of rationality in financial market participants' decision-making (see Shiller, 2005; Clark, Caerlewy-Smith and Marshall, 2006; Strauss, 2008), the former community in particular has fallen short in proposing positivist explanations of behavior. To be sure, rejecting strong assumptions of rationality does not exclude the possibility that there are "real" factors that contribute to the behavior of individuals and institutions. In 2009, Strauss proposed an ambitious and promising multi-method research agenda to tackle the big question of context in pension decision-making:

[pension decision-making] is an embodied experience involving performative and sensory experiences; it is place bound and physically localised; and it is also deeply implicated in, and constructed by, financial markets, local, firm-level, and national policy, and global circuits of capital. Indeed, the complexity of the scalar

relationships involved in economic decision making, and the disjunction between these scales, are arguably significant contributors to the conditions of risk and uncertainty under which 'irrational' choices about pensions, for example, are often made (p. 309).

Following Strauss' (2009) call, this article offers an empirical study of the role of context, understood as a multi-scalar construct, in pension decision-making. It provides a concrete description of some of the contextual variables that push public pension plans to in- or outsource their investment management functions—a problem Baker and Hubbard (2003) coined the “make-or-buy” dilemma. The article employs mixed-methods, juxtaposing positivist and reflexive approaches. An econometric analysis of a unique panel dataset of 21 state pension plans tests specific relationships between levels of outsourcing and the organizational, economic and political context these plans are embedded in. These quantitative results are enriched with insights from 37 semi-structured interviews with investment professionals employed by a top-performing state pension plan that insources half of its assets under management (AUM). The study contributes new insights on context to economic geographic literature on pension decision-making as well as new perspectives to financial geography literature on the role of place and distance in institutional asset management.

The article is structured in four parts. In the first section, I propose a theoretical framework to describe the make-or-buy dilemma as a “problem of embeddedness” (Granovetter, 1985). The framework conceptualizes the dilemma as multi-scalar,

encompassing organizational, economic and political scales. In the second section, I review an interdisciplinary body of scholarship in economic and financial geography, urban economics and pension economics that bears relevance to the make-or-buy dilemma in asset management. This literature review helps formulate hypotheses for the empirical study. In the third section I present the data and methodology before unpacking the results of the quantitative and qualitative analysis—these results are presented following the structure of the conceptual framework. The fourth section concludes.

The problem of embeddedness in public pension plans

State pension plans are hardly conventional investment firms. They feature organizational, geo-economic and political singularities that underpin their response to the make-or-buy dilemma. These singularities make each state pension plan somewhat unique relative to peers and akin financial institutions such as sovereign wealth funds (SWFs), endowment funds and private sector pension funds. Unlike private pensions, public pension systems in the United States are not subject to federal regulation. Reflecting a “bygone era of U.S. federalism” (Clark and Monk, 2014), state government employees’ pensions’ assets collection, management and distribution is the responsibility of individual states. Consequently, there is a high degree of localism in the way public pensions are governed (see Hebb and Beeferman, 2009; Clark and Monk, 2017).

This localism produces large differences in the way public pension funds perform through time and space. Looking at the 10 largest state pension plans in 2016 one finds large differences in funding (the ratio of assets to liabilities – a common measure of DB pensions’ financial health). For instance, while New York State Teachers had 99bn USD of assets accounting for 94 percent of its projected liabilities, California State Teachers had 170bn USD of assets accounting for only 64 percent of its projected liabilities. Studies have linked these differences in funding to local differences in political environments and governance structures. Elder and Wagner’s (2015) study suggests that pension underfunding increases following surges in electoral competition and legislative turnover rates. The phenomenon, the authors argue, reflects sponsors abuse of the unique legislative discretion granted to state and local authorities over pension management. Differences in boards of trustees’ size and composition were also shown to have significant consequences on public pension plans’ investment performance (Ambachtsheer, 2007) and funding (Yang and Mitchell, 2005; Munnell, Haverstick and Aubry, 2008).

While all public pension plans share the same function – to serve the interest of their members by covering projected liabilities – actual objectives as well as the means to achieve them vary significantly between plans. Economic geographers have provided important contributions to document and explain such differences. Using a behavioral approach, Hebb and Beeferman (2009) have shown that a number of public pension funds stretch their objectives and formulate investment policies that go beyond the narrow case of retirement security. For instance, the authors documented how a

number of public pension funds have adopted labor-friendly policies to avoid investing in private equity firms likely to privatize public sector jobs. They also showed that a number of public plans pursue investment strategies aimed at producing not only financial but social benefits. For instance, Economically Targeted Investments are designed to generate adequate risk-adjusted investment returns as well as filling private investment gaps to create local employment, affordable housing and to develop renewable energies and clean technologies.

Public pension funds resort to a variety of contractual arrangements and investment strategies to meet their particular objectives. Using an institutional approach, Clark and Monk (2014) have shown that public pensions' external investment management contracts feature a large degree of heterogeneity in substantive content and form. The authors argued that these differences reflect the localism of sponsors' procurement rules and regulations – again, in the absence of federal regulation, there is tremendous diversity in the rules governing the provision of external investment services. Finally, Urban (2018c) showed that public pension plans differ greatly in the way they allocate their assets between passive and active management and between in- and outsourcing.

Although scholarship on public pension funds is rich, it has paid a surprising lack of attention to public pensions' investment management practices in relation to their geographical dispersion. While state pension plans often operate walk-in administrative offices for their members in several strategic areas within the state

borders, the core of their asset management decision-making is conducted from their designated headquarters in their state's administrative capital. This reflects the importance placed by state sponsors on maintaining political proximity over financial market proximity. As a result, state pension plans are scattered across the country – while a handful are de-facto located in, or close to, large financial agglomerations, the majority are found in remote cities that offer little in the way of institutional investment services and specialized labor pools.

By contrast, the financial industry tends to agglomerate around key cities that pool together complementary services, specialized labor, information and financial capital (Beaverstock and Hall, 2012; Wójcik, 2012; Agnes, 2009). The asset management industry largely follows this geographical logic. In 2012, U.S. based asset managers looked after 33.5tn USD, 80 percent of which was managed by firms headquartered in New York, Boston, Philadelphia, Chicago, Los Angeles, Baltimore and San Francisco. The New York metropolitan area alone was home to 40 percent of these assets. On the other hand, public pension systems collectively managed 3.1tn USD unevenly distributed amongst geographically dispersed organizations. This dislocation is illustrated in Figure 1 which maps the seven leading U.S. asset management centers and the 21 state plans analyzed in the empirical section.

< Insert Figure 1 here >

The localism in public pension governance and this fundamental geographical dislocation, I argue, are foundational to the problem of embeddedness in the make-or-buy dilemma amongst state pension plans. To describe the problem, I propose a conceptual framework presented schematically in Figure 2. Its geographical center point is plans' headquarters, where decision-making on how to address the make-or-buy dilemma takes place. Building upon Taylor and Thrift's (1983) proposition for firm segmentation in economic geography, the framework posits that pension plans' response to the make-or-buy dilemma is shaped by micro-organizational, meso-economic and macro-political contexts that vary through time and space. This framework provides a theoretical starting-point to construct research questions and hypotheses to guide the empirical analysis.

< Insert Figure 2 here >

The micro-organizational scale encompasses variables characterizing individual organizations. For instance, economies of scale have been emphasized as key to understanding the make-or-buy dilemma. While there is no consensus on what scale is sufficient to insource investment functions (Dixon and Monk, 2014), commentators contend that larger pension plans should be able to manage a larger percentage of their assets internally (see most notably Clark, 2008; Clark and Monk, 2017). This, however, remains untested—I address this in the quantitative part of the study. Softer aspects such as organizational culture may also affect plans' response to the make-or-buy

dilemma. This is a dimension less suited to quantitative methods which I therefore address using the interview data.

The meso-economic scale encompasses measures of plans' local economic and financial environment. The local is defined as the metropolitan statistical area (MSA). I hypothesize that the vibrancy of plans' local economics and local financial sector plays a role in how plans respond to the make-or-buy dilemma. For instance, the Public Employees' Retirement Association of Colorado, headquartered in Denver, and the State Board of Administration of Florida, headquartered in Tallahassee, probably face significant challenges to recruit specialized labor locally. Equally, they might find it difficult to maintain quality relationships with contractors compared to New York State Teachers' Retirement System, which is headquartered in Albany, New York. This taps into meaningful questions for financial geographers interested in the role of place and distance in asset management. In particular, it begs the question of how the place of investment decision-making matters in a world of increasing network economies sustained by cognitive, social and institutional proximity via technological means (Boschma, 2005; Boschma and Frenken, 2010)—something I address using both quantitative evidence and insights from the interview data.

Finally, the macro-political scale encompasses variables of a political-economic nature. This scale emphasizes that public pension management is also embedded in state government politics. As such, sponsors tend to evaluate public pension plans' costs

and performance in relation to broader public administration and political considerations. For instance, state legislators struggling with increased fiscal deficits after two financial crises (.com and GFC) were shown to have decreased employer contributions and increased investment return expectations, hoping the latter decision would make-up for the former (Andonov, Bauer and Cremers, 2015; Munnell, Aubry and Cafarelli, 2015, Urban, 2018b). The shift increased plans' appetites for complex, high risk-reward investment solutions. As a result, plans' investment expenses increased significantly. Amidst economic uncertainty and market volatility, these expenses were not matched by out-performance causing further funding deterioration (Hooke and Walters, 2013) along-side escalating portfolio risks (Andonov, Bauer and Cremers, 2015). These intricate macro-political dynamics, it turns out, also have a significant impact on plans' responses to the make-or-buy dilemma. This is substantiated by the econometrics and further discussed in light of the interview data.

IFCs and frontier finance

Following the expansion of virtual financial networks in the 1990's – notably the wide-implementation of electronic trading platforms and the development of commodified financial information – commentators speculated on a forthcoming “end of geography” (O'Brien, 1992; O'Hara, 1995). Not to be understood as a world of inconsequent geographies per se, the prognosis imagined this new virtual era would blur and recast the boundaries of global financial transactions. Twenty-five years later,

while finance's reach is arguably increasingly global, the industry remains resolutely agglomerated around few "capitals of capital" (Cassis, 2006).

While a handful of international financial centers (IFCs) exert global dominance, other cities have developed complementary local specialties. In the West, New York and London have established their hegemony in channeling domestic flows of capital to the outside world (Wójcik, 2013). In the Asia-Pacific region, Beijing offers geopolitical advantages for financial institutions in China while Singapore and Hong-Kong lead foreign lending and trading of international currencies (Lai, 2012). Finally, Bermuda, the Cayman Islands and the British Virgin Islands provide key repository spaces for offshore capital (Haberly and Wójcik, 2015). The regular and intense cross-border interactions between these locations are constitutive of what Coe, Lai and Wójcik coined a "global financial network" (2014).

Pension funds and SWFs have traditionally preferred to piggy-back on the industry to invest their assets. By delegating their investment functions, asset owners would access the asset management industry's global network. However, this outsourcing model (buying investment returns for a fee) has been put into question in light of financial intermediaries' consistent failure to deliver enough investment performance to justify their hefty fees (Folkman *et al.*, 2007; French, Leyshon and Thrift, 2009). Dixon and Monk (2014) first explored a grassroots movement led by pension funds and SWFs looking to insource their investment functions from distant locations. They described

how asset owners located in cities such as Melbourne, Australia, and Edmonton, Canada have built significant internal investment capabilities to bypass financial intermediaries in Sydney, Toronto and New York.

Their conceptual proposition, “frontier finance”, held the exciting promise to disrupt the power asymmetries between the financial industry and its clients. Their empirical findings, however, called for patience if not resignation. According to the authors: “there is an insufficient critical mass of organizations at this stage successfully implementing change such that the conventional functional and spatial structure of asset management faces an existential threat and that the dominance of IFCs in the allocation of global flows of capital is in doubt” (p.852). While the economic geographic literature widely acknowledges the advantages of industry clusters (see for instance Florida, 2002b and Beaverstock and Hall, 2012 on talent; Gertler, 2003 and Storper and Venables, 2004 and Cook *et al.*, 2007 on knowledge production and transmission), financial geographic literature remains indecisive in explaining how and why location and agglomeration matter in the production of investment returns. Specifically, it remains unclear whether co-locating investment decision-making with financial agglomerations is desirable, let alone realistic, for asset owners managing long-term, global and diversified investments.

Quality of oversight and access to specialized labor market

There is a persistent belief amongst practitioners that a select number of individuals with the right combination of superior skills, expertise and information will generate superior investment returns (Clark and Monk, 2013). Therefore, pension plans' investment success is still widely thought to depend on their ability to consistently identify such individuals and either hire them (insourcing) or contract them out (outsourcing). As argued earlier, this objective is unevenly constrained by geography. Take CalPERS which is headquartered in Sacramento. Its proximity to San Francisco, a leading IFC, provides local access to specialized firms as well as a specialized labor pool that a plan such as the State Board Administration (SBA), headquartered in Tallahassee, Florida, does not have access to locally. Indeed, the SBA and its New York City based contractors must undergo a 4h flight with a stopover to meet face-to-face. Equally, the SBA must look nationally to recruit investment professionals and convince them to relocate to a place with few professional alternatives.

Maintaining quality relationships and oversight with contractors in New York may be a significant enough challenge for a pension plan located in Tallahassee or Jackson, Mississippi's state capital, to consider insourcing at least part of its investment functions. Equally, the scarcity of specialized skills and expertise to hire locally may push it to contract out to distant providers. Complicating this issue, U.S. public pensions offer amongst the least competitive compensation to their investment professionals. While Canadian pension plans, known as the champions of insourcing, pay an average annual salary of 536,000 USD, U.S. plans *only* offer 148,000 USD to their investment staff (MacIntosh and Scheibelhut, 2012). Urban (2018a) offers a detailed

case-study on the implications of this compensation gap for talent management in public pension plans.

Placing the production of investment returns

Inspired by Gertler's (2003) geographical conceptualizations of tacit knowledge, I argue there are three distinct views on the role of place in the production of global investment returns. The first view posits that investors should seek close physical proximity with major financial agglomerations. It supposes that IFCs provide superior spaces of decision-making by pooling workers and technological infrastructure in ways that create competitive knowledge regions. An idea roundly disputed by Shiller's (2005) work on the "irrational exuberance" of co-located financial market participants.

The second view posits that co-location should be understood as a relational phenomenon. According to Clark and Monk (2017), establishing direct physical proximity has become impractical given the spatial extensiveness of contemporary global financial markets. Additionally, given the expanded territorial reach of virtual investment platforms and commodified financial information, seeking physical proximity has arguably become increasingly superfluous. Instead, investors should aim to integrate "communities of practice" (Gertler, 2003) that may be physically

distant but exchange information and expertise through what Bathelt and Cohendet (2014) would call “knowledge platforms”.

The third view posits that investment outperformance occurs by seeking physical proximity with the underlying investments rather than where their derivative financial securities are traded (IFCs). The work of Coval and Moskowitz (1999, 2001) on investors’ preference for geographically proximate investments, provides valuable insights on this perspective. The authors demonstrate that local investors can take advantage of “information asymmetries” and earn abnormal returns on investments in local firms, especially in and around small and remote cities. The authors’ assert that physical proximity produces information advantages derived from local market knowledge.

Evidently, these three perspectives are largely idealized and their implementation ought to be constrained by plans’ organizational, economic and political context. For dispersed state pension plans in the United-States, the first view would almost invariably require outsourcing investment functions to contractors located in IFCs. Here outsourcing provides co-location via intermediation. Although the second view supports insourcing outside IFCs, it is unclear to what extent distant public-sector pension plans can maintain a relational proximity with the financial industry which is arguably a distinct “community of practice”. Furthermore, there is the issue of having to attract and retain investment professionals in locations outside of specialized labor pools. Finally, the third view suggests that public plans should contract-out to, or co-

invest with, a largely dispersed network of local managers that generate superior returns through locational advantages. Here search costs and external contract management would prove laborious and expensive. Given the scope of public pension investments, the three views are likely to be incorporated complementarily. This is corroborated by the empirical analysis that follows.

Data and methodology

Sources and sample

The following analysis uses mixed-methods to assess what contextual factors contribute to state pension plans' response to the make-or-buy dilemma. The study relies on an econometric analysis of a unique panel dataset on 21 state pension plans. The variables tested are embedded in the three scales of the conceptual framework. As such, they capture proxies of the organizational, economic and political context in which each of the 21 plans are embedded. This first layer of empirical analysis is positivist in that it seeks to quantify how contextual differences explain behavior. These quantitative results are enriched using a reflexive approach relying on semi-structured interviews conducted with 37 investment professionals employed by a large state pension plan. The plan was selected for two reasons: firstly, it manages half of its assets in-house (more than most state pension plans) from a medium-size city located afar from financial agglomerations; secondly, the plan is amongst the best performers in the country. In 2015, its funding ratio was 86 percent (12 percent higher

than the national average) and its one-, five- and ten-years investment performance ranks it amongst the top 5 plans in the country.

For practical reasons (access, time and resources) the qualitative insights are restricted to one plan. Since several interviewees have worked for other state pension plans as well as private sector firms, the insights have a degree of comparative relevance beyond this narrow case. Nonetheless, the qualitative insights have limited value in cross-validating the quantitative results. Rather, I followed Strauss (2008) and used the quantitative insights to structure and inform the fieldwork and formulate questions unanswered (and unanswerable) by the econometrics. In particular, I focused on uncovering how social and spatial relations influence the plan's response to the make-or-buy dilemma. I focused on three themes: distance, politics and governance. Finally, the qualitative insights were used iteratively to refine the quantitative model's assumptions and variables. The interviews were conducted on site over the months of March and April 2016. Following ethical guidelines in social sciences, the names of the participants, the name of the organization as well as details potentially leading to their identification have been kept confidential (Clark, 1998).

The database used for the regression analysis compiles data from several sources. Pensions & Investment (P&I), a U.S. based news and research provider for institutional investors, provided access to their proprietary dataset including the nominal assets managed internally by public pension plans. This allowed for the derivation of an

internal capabilities' ratio for each plan. This ratio is defined as the assets managed internally by a plan i in year t divided by the total assets managed by that same plan i in year t . It is used as the dependent variable in the econometric analysis. The period of analysis is 2006 to 2012. Although a longer time frame would be desirable, it adequately captures the short and medium-term effects of the GFC while smoothing its overall effect by including pre- and post- crisis time periods².

Missing data points were recovered from the database compiled by The Centre for Retirement Research at Boston College (CRRBC) and plans' Comprehensive Annual Financial Reports (CAFRs). Metropolitan-level economic and state government data were collected separately using online resources from the U.S. Bureau of Economic Analysis (BEA), the U.S. Census Bureau and the U.S. Bureau of Labor Statistics (BLS). By combining these sources I constructed a unique dataset including variables embedded in the three scales presented in the conceptual framework.

P&I's dataset included 182 state and local plans. Careful examination of the data led to a reduction in sample size. 132 plans that did not consistently report their internal

² 2006-2012 is the longest time-series available. Close examination of temporal patterns showed that the GFC had little short- and mid-term effect on insourcing strategies.

capabilities over the period were excluded from the sample³. 16 closed or frozen plans were also excluded. On average, local plans manage 6 percent of their assets internally compared to 39 percent for state plans. An analysis of variance confirmed a statistically significant difference between the internal capabilities' ratio of state and local plans. Concurring with Gehl, Willoughby and Bell (2013), it stresses the complex and wide-ranging differences between state and local plans. Given the size of the sub-sample, it was not feasible to perform a separate regression analysis. Consequently, these 6 local plans were excluded from the sample. Further examination of the model's residuals led me to exclude 7 plans that presented leverage issues. The final sample is composed of the 21 state pension plans listed in Table 1.

< Insert Table 1 here >

While the sample was reduced, the use of time series over the course of seven consecutive years brings the number of observations to 147, which is satisfactory for statistical analysis. Although all four Census regions are represented in the sample, the geographical coverage is somewhat skewed. The South, the Midwest and the Northeast are overrepresented (see Figure 1). Robustness could be improved by including more plans located in central states such as Iowa, Minnesota, Kansas, North

³ These include plans with no data points at all as well as plans with two consecutive data points missing; isolated missing data points (excluding 2006 and 2012) were approximated using the average of the two closest years.

and South Dakota. Proving data coverage and availability improves, it would be interesting to rerun the same analysis with a larger sample. The final sample totals 1.43tn USD in AUM (47 percent of the total assets managed by state and local plans in 2012).

Variables summary

The twelve variables tested in the regression analysis are embedded in the three scales that make-up the conceptual framework (see Appendix for more detailed rationales and expectations). The micro-organizational scale tests how plans' organizational characteristics shape their response to the make-or-buy dilemma. The variables tested are: 1) the natural logarithm of total membership, which is used as a proxy for total AUM⁴ 2) the demographics ratio, which measures the number of active participants per retirees 3) the home bias of asset allocation, which captures the share of assets invested in domestic equity and debt securities and 4) the complexity of asset allocation, which accounts for the share of assets invested in alternatives, private equity and real estate.

⁴ Total membership is used here as a proxy for AUM since AUM is already the denominator of the dependent variable.

The meso-economic scale encompasses measures of local economic activity as well as measures of the vibrancy of plans' local financial sector. The local is defined as plans' headquarters' MSA. MSAs pool together areas with a high degree of social and economic integration⁵. The meso-economic scale includes the following variables: 5) the natural logarithm of local gross domestic product (GDP) 6) the local unemployment rate 7) the contribution of finance and insurance to local GDP and 8) the co-location with IFCs dummy. For the latter, the attention is focused on financial agglomerations recognized not only domestically but internationally as the most competitive centers of asset management, namely: New York, Boston, Philadelphia, Chicago, Los Angeles, Baltimore and San Francisco (see Figure 1). Proximity is measured by the distance in miles between a plan's headquarters and its closest asset management center.

The distance is coded into a binary variable, taking a value of 1 if the distance is less than 100 miles and 0 otherwise. It sets a realistic threshold for day-travels. Coval and Moskowitz, (1999, 2001) used a similar approach to distinguish between local and non-local firms. The interview data suggested that external contractors are less inclined to travel to distant pension plans requiring stop-overs and over-night stays. Generally, contractors tend to dismiss small-scale and distant plans altogether while visiting

⁵ MSA-level data have been used extensively in empirical research in economic geography and urban studies (see Florida, 2002a, 2002b; Wójcik, 2011; Dougal, Parsons and Titman, 2015).

sizable distant plans no more than once or twice a year, preferring to conduct the bulk of their interactions over the phone.

Finally, the macro-political scale encompasses variables pertaining to government administration. It includes the following variables: 9) state government debt-to-GDP ratio 10) plans' one-year lagged funding ratios, 11) plans' five years return on investments and 12) plans' assumed rate of return (ARR) which reflect plans' annual investment returns expectations. Table 2 provides descriptive statistics on all the variables (co-location with IFC is left blank as it is binary).

< Insert Table 2 here >

Model specification

While the model has individual organizations at its core, its design reflects the conceptual framework which posits that public pension plans are embedded in multi-scalar contexts. As such, the model follows the assumption that the individual specific effects are uncorrelated with the independent variables which supports the use of a random effect model for panel data analysis. A Hausman test corroborates the difference in variance between the fixed and the random effects model. The observed heteroscedasticity of the error terms is corrected by clustering the variance at the plan level. The final random effects model is expressed in Equation 1:

$$\frac{DB \text{ assets managed internally}_{it}}{Total \text{ DB assets}_{it}}$$

$$\begin{aligned}
&= \beta_1 (\ln Total \text{ membership})_{it} + \beta_2 (\text{Demographics ratio})_{it} \\
&+ \beta_3 (\text{Home bias of asset allocation})_{it} \\
&+ \beta_4 (\text{Complexity of asset allocation})_{it} \\
&+ \beta_5 (\ln \text{Metropolitan area GDP})_{it} \\
&+ \beta_6 (\text{Metropolitan area unemployment})_{it} \\
&+ \beta_7 (\text{Metropolitan area \%GDP finance and insurance})_{it} \\
&+ \beta_8 (\text{IFC within 100 miles})_i + \beta_9 \left(\text{State} \frac{\text{debt}}{\text{GDP}} \right)_{it} \\
&+ \beta_{10} (\text{Funding ratio})_{it-1} + \beta_{11} (\text{5Y investment returns})_{it} \\
&+ \beta_{12} (\text{Assumed rate of return})_{it} + \alpha + u_{it} + \varepsilon_{it}
\end{aligned} \tag{1}$$

Results

The model reaches a satisfactory level of explanatory power with an R-Squared of 0.49. Results are presented in Table 3. For consistency, the discussion is structured around the conceptual framework. While I unpack the econometric results, I use the qualitative insights to shed further light on how distance, politics and governance affect plans' responses to the make-or-buy dilemma.

< Insert Table 3 here >

Micro-organizational

Although economies of scale are statistically significant, their effect is rather small. The model predicts that for a 1 percent increase in total membership, the proportion of assets managed internally should increase by 0.15 percent. Interestingly, the minimum scale to insource investment functions appears to be lower than previously suggested – Dixon and Monk (2014) mentioned 25bn USD as a minimum. For instance, the Louisiana State Employees Retirement System has managed internally between 25 and 31 percent of its AUM amounting to less than 10bn USD over the 2006-2012 period. These findings concur with Collins (2003) who showed that the bulk of pension plans' economies of scale happen in 100mn increments for plans managing less than 1bn USD.

Interviewees emphasized that economies of scale on internal management are often balanced with those on external management. Indeed, contractors offer larger discounts on investment management fees as plans increase the size of their commitments. According to the executive director (ED) & chief investment officer (CIO), while scale matters, plans need to devise an insourcing strategy consistent with their investment objectives and asset allocation. In public pension plans, he suggested, this is largely done by leveraging internal expertise in domestic public markets. The analysis confirms his assertion.

Public plans tend to insource investments in debt and equity of publicly listed U.S. companies. Conversely, they rely on external managers for their non-domestic and alternative investments. The model predicts a 0.32 percent increase of the internal capabilities' ratio for every 1 percent increase in the home-bias of asset allocation. This result is important since public pension plans invest an average of 76 percent of their assets in domestic equity and fixed-income securities (The Center for Retirement Research at Boston College, 2016).

There are two important factors underpinning this result. The first factor is linked to macro developments in capital market infrastructure and asset management. As shown by Haberly et al. (2018), investments in U.S. equities and fixed-income are increasingly mediated through digital platforms that reduce information asymmetries, transaction costs and execution time. As such they feature low locational constraints and are well suited to internal management, regardless of plans' geographical location relative to financial agglomerations. The second factor is linked to the politicization of state pension plans' domestic investments. Two recent studies have shown that politically affiliated trustees tend to favour local investments in exchange for political donations (Bradley, Pantzalis and Yuan, 2015; Andonov, Hochberg and Rauh, 2016). Due to the proximate nature (understand geographical-cum-political proximity) of these investments, plans are more likely to invest in local assets directly rather than through external contractors.

Although disintermediated local investment strategies can have financial as well as ancillary benefits (see Hebb and Beeferman, 2009; Hebb and Sharma, 2013; Monk, Sharma and Sinclair, 2017), they tend to negatively impact risk-adjusted investment returns when they are driven by hidden political agendas. This is a problem of governance. Interestingly, interviewees with previous experience in other public funds emphasized feeling comparatively well insulated from politics in their current jobs. One respondent with 30 years of employment with the fund recalled that it had not always been the case. She attributed differences to top management's ability to navigate political interferences through fiduciary duty by convincingly explaining why investment rationales legally trump political agendas.

This skill was unanimously attributed to the current ED & CIO whose recognized investment expertise was matched by shrewd insights in local politics. Building on these complementary skills, the ED & CIO was able to establish the organization as an investment institution within the state apparatus. As one employee put it: "this is not a normal public agency, we really are an investment firm that is under a public umbrella".

The ED & CIO remembers a story about the state's governor, circa 1997, trying to pressure the fund's executives to divest from tobacco stocks. In the late 1990's, several U.S. states were suing big tobacco in relation to escalating smoking-related public

health costs. At the time, tobacco stocks happened to be amongst the fund's most profitable large-cap investments. The respondent recalls addressing the governor as follows: "you do what you got to do politically, and we do what we got to do as a fiduciary... public health policy leadership can be separate from fiduciary responsibility, just defer to professional investment staff". This ability to delineate political and investments rationales to resolve dilemmas and an all-round investment focused organizational culture appear paramount to the fund's strong funding and investment performance. It supports the conceptual model's emphasis on the fundamental importance of context in pension decision-making.

Echoing Clark (2008), guaranteeing expert oversight inside the organization appears to be an important component of the fund's success. About 50 percent of the fund's assets are invested directly using internal resources that focus on passive investments in domestic public markets. Active investments in international public markets as well as alternatives and private markets are delegated to external providers through internal specialized teams focusing on mandate selection and oversight. While half of the fund's assets are managed by external contractors, expertise is represented inside the organization across all asset classes and geographies. As such, investment executives can formulate and articulate complex investment rationales in a timely and direct manner and are in a stronger position to avoid being caught between external advisors and trustees.

Meso-economic

The model predicts the internal capabilities' ratio to increase by 0.11 percent for every 1 percent increase in metropolitan-level GDP. Although the coefficient is rather small, the sign indicates that plans' autonomy is positively influenced by a supportive local economy. Local unemployment, on the other hand, is not statistically significant.

The model predicts a 1.40 percent decrease of the internal capabilities' ratio for every 1 percent increase in the contribution of the finance and insurance sector to local economic activity. This brings important empirical evidence to support and refine arguments about asset owners' (such as pension funds and SWFs) access to skills and expertise (compare with Dixon and Monk, 2014). Firstly, one can expect the compensation gap between private and public-sector finance jobs to grow as the local financial industry claims a larger share of local economic activity. In more vibrant financial agglomerations, private sector investment professionals are less likely to accept a job in the public-sector when competitive alternatives are available locally. This phenomenon increases co-located plans' difficulties to hire and retain investment professionals. In turn, local employment competition effectively forces public plans to turn to private sector firms and contract out investment expertise through external investment management contracts.

When asked if the fund's location was constraining the plan's investment functions, the Chief Risk Officer answered: "In short, no. I mean the issue we ran into is talent and that's people that may want to be in New York rather than [here]". This observation, however, deserves to be considered further in light of the different kind of skills and expertise required to manage different type of financial investments. The fund's Chief Operating Officer provided further clarification: "in terms of attracting people, for those doing direct active management it might be more of a challenge; passive is easier with efficient markets." This is reflected in the fund's strategic decision to focus its internal management operations on passive investment in domestic markets. This observation corroborates the econometric results on the positive relationship between the home bias and the internal capabilities' ratio, and the negative relationship between the complexity of asset allocation and the internal capabilities' ratio.

Plans with immediate access to a developed local financial sector might also have a stronger incentive to rely extensively on intermediaries as competitive expertise is readily available at their doorstep. Here, outsourcing provides a workaround for the compensation gap. It may also be perceived as a superior solution as the local industry showcases several well-rounded investment presentations, conferences and meetings supporting their purported ability to beat the market—a strategy public funds keep pursuing (Urban, 2018c) in spite of mounting evidence of the inability of active managers to compensate for overhead costs (Malkiel, 2013). Physical proximity to suppliers also improves the management of contracts by making frequent interactions

possible. Relationships may also be easier to build within a metropolitan or regional context that comes with shared history, culture, values and business practices. Finally, plans may also want to maintain close relationships as to not only monitor contractors' activities but also learn best practices through regular interactions.

The model predicts that plans located within 100 miles of one of the country's leading asset management centers (New York, Boston, Philadelphia, Chicago, Los Angeles, Baltimore and San Francisco) incur a 0.15 percent decrease of their internal capabilities' ratio. While the effect is small, the finding is interesting in terms of the threshold is sets for what constitutes *co-location* in this specific context. As Gertler (2003) puts it: "there is considerable disagreement concerning how 'close' should be defined, as well as multiple rationales as to why it is important". The results indicate that in the context of contracting investment management services, while being embedded in a vibrant local financial sector matters the most, closeness expands beyond plans' immediate surroundings to a distance equating approximately a day's travel. Here the issue may not be so much about negotiating investment management agreements—for which external providers will happily overcome distance with air travel and over-night stays—than it is about maintaining quality relationships with contractors through regular face-to-face contacts that are not overly disruptive to day-to-day business.

A useful way of refining the problem of distance in asset management is to think about asset classes' qualitative differences. While equity and fixed-income investments in

developed markets are increasingly digitized and as such lend themselves well to remote investment, investments in private markets often still require boots on the ground and are less suited to remote investing. In fact, the only remaining hurdle to investing at a distance in equity and fixed-income seems to be talent management. The head of fixed-income investments stressed that distance still adversely affects training and the ability to build professional relationships with industry peers. She recalls: “it is more difficult to build personal relationships with people on the street because they just don’t want to come here because it’s such a pain to get here”. Real estate managers on the other hand saw distance as a significant hurdle to their day-to-day. One manager stated: “real estate is different because you still need to travel to the assets anyway”. A colleague added: “our advisors are better located than we are; they are in Dallas and Chicago, so they can get anywhere in the country in a couple of hours and they will have guys in New York, San Francisco, Boston or Chicago.”

Macro-political

Since state pension plans are creatures of state government, their management is subjected to public administration and political logics that are not always directly concerned with prudent investment management. While some interferences have been argued to fulfill beneficial social functions—see Hebb and Beeferman, 2009 and Webber, 2018 on public sector employment protection, and Hebb and Sharma, 2013 on filling investment gaps in local infrastructure—political interferences can conflict with

state pensions' objective to fund retirement liabilities, thus unnecessarily burdening taxpayers.

This perspective follows agency theory. Agents, here elected politicians and appointed/elected board members, may be inclined to interfere with the management of public pension assets to balance the use of public resources and even serve personal political agendas. Typically, sponsors often juggle public deficits by reducing their contributions to their pension systems. This tends to increase pension deficits and, ironically, further aggravate public deficit (Munnell, Aubry and Cafarelli, 2015). Similarly, sponsors might prefer to outsource pension investment management to reduce their payroll. However, the model does not return a statistically significant relationship between state's debt-to-GDP ratio and the internal capabilities' ratio.

It has also been argued that elected officials may want to deflect responsibility for poor performance onto external contractors to shelter their political reputation (Thatcher and Sweet, 2002; Jenkinson, Jones and Martinez, 2016). However, the model shows no statistically significant relationship between the one-year lagged funding ratio⁶ and plans' internal capabilities' ratio. Similarly, investment performance over a five-year period has no statistically significant influence on plans' internal capabilities' ratio.

⁶ Funding ratio is tested as it includes both the effects of funding discipline as well as investment returns.

The previous fiscal year's funding ratio is used to capture the effect of available information.

These results suggest that past performance does not impact plans' response to the make-or-buy dilemma.

Finally, the model predicts a 10.90 percent decrease in plans' internal capabilities' ratio for every 1 percent increase in plans' ARR. In other words, increases in investment return expectations are associated with significant increases in outsourcing. Considering the volatility of financial markets between 2006-2012, it is concerning to see that the 21 plans included in the sample held an average 7.9 percent ARR. This is a pure product of a regulatory loophole. Indeed, public pension plans in the United States are allowed to discount their liabilities using expected return on investments. Due to a lack of transparency on the part of legislators and a lack of engagement on the part of the public, this "camouflage" (Andonov, Bauer and Cremers, 2015) of pension underfunding goes largely unnoticed. On actuarial assumptions and ARR, the Chief Financial Officer stated:

Right now, it is more like a note in the back of [pension funds'] financial statement. Stockholders (...) they really want to see the state of health of a company, they scrutinize much more closely than the public would a government financial statement. Of course, politicians do not want to have to increase taxes. In some states, they are not facing the problem, like Illinois, where their funding ratio is very, very low. On one side you have a powerful union, on the other side you have the politicians. Then you have the taxpayers stuck in the middle. They are the ones who are going to have to foot the bill

Using ARR ranging from 8 and 8.5 percent as discount rates, the Teachers Retirement System of Illinois *appeared* 60 percent funded in 2006 and 40 percent funded in 2012. Discounting Illinois's pension liabilities with current interest rates would show a

bankrupt organization. In comparison, private sector pension plans are required to use discount rates calculated as a function of current interest rates (Crossley and Jametti, 2013). Inflating ARR not only artificially improves the funding of public pension plans, it further transfers sponsors' responsibility for contributions onto boards who are tasked to deliver unrealistic investment returns. The rationale is simple and worrisome: let financial markets rather than voters fund public pension systems.

Ultimately, it increases public pensions' risk appetite and unreasonably right-skews their allocation towards expensive and volatile asset classes (Andonov Bauer and Cremers, 2015). In the event of financial market instability, increased risk exposure will incur further asset write-downs that could send some of the most poorly funded plans into uncharted territories. The results of the analysis show that plans' desire to meet over-inflated investment return expectations are met by seeking the help of external contractors. One respondent close to state politics as well as the investment functions of the plan, stated that ARR 'is a political fiction'. It gives politicians legroom to discount present political costs of increasing pension contributions at the expense of future socio-economic costs that may see sponsors default on their pension promises. In the respondent's own words:

If you are a politician, the last thing you want to do is go tell the electorate that put you into the capitol: "We can't do the new street that you want because I put all the money in the pension system for the public employees"; to that they will say: "What? You idiot, fire all these people and build me that bridge".

Conclusion

Economic geography has much to contribute to understand how decision-making takes place in time and space. This article proposed to find out what factors push public pension funds to outsource their investment management functions. It built upon the work of Clark, Strauss, Knox-Hayes (2012) on the role of context in decision-making under risk and uncertainty. Using mixed-methods, I have shown that public pensions are subjected to a number of contextual factors that shape their outsourcing strategies. In trying to address what I framed as a make-or-buy dilemma, I have argued and demonstrated that context can be conceptualized as multi-scalar, encompassing organizational, economic and political dimensions. Using quantitative methods, I have shown that outsourcing is linked to plans' i) investment return targets ii) allocation to non-domestic and private market investments iii) local financial sector's vibrancy and iv) geographical proximity to a leading financial center.

One of the most important finding of this study is the perverse effect of using investment return targets to discount public pension liabilities. Adding to the work of Novy-Marx and Rauh (2009), Brown and Wilcox (2009) and Andonov Bauer and Cremers (2015), the results show that plans targeting higher, and arguably unrealistic, returns on investment turn to external contractors to manage their assets. This phenomenon, I argued, is first and foremost a problem of regulation and governance. As Clark et al put it: "...the scope of observed behavior –beyond intuition, habit and imitation—is produced by society (the environment) and is "regulated" by

performative requirements that attend certain roles and responsibilities” (p29, 2012). The problem uncovered here is born out of a misalignment in “performative requirements” between the long-term financial objectives of pension funds and the short-term political objectives of their trustees.

Based on case study evidence, I have suggested that pension executives might better navigate political interferences by producing and presenting well-rounded investment cases to pension fund trustees. To this end, pension funds may be advised to have an adequate representation of investment skills and expertise across asset classes inside their organization. While the approach may provide a viable fix, there is nonetheless a pressing need to reform public pension regulation in a way that addresses local political interferences.

It is worth stressing here that inefficient decision-making, from a collective standpoint, is not the prerogative of public pension funds. Indeed, market participants in financial centers are known to make poor decisions that are shaped by equally problematic contexts. Shiller’s (2005) work on “irrational exuberance” suggests that, overall, financial market participants are biased and inefficient decision-makers. If public pension funds face a number of regulatory challenges, so do private sector financial institutions—the GFC provided compelling evidence of the deleterious effect of the private sector’s own regulatory shortcomings.

Using mixed-methods, I have shed light on how place and distance shape pension plans' outsourcing strategies. In particular, I have shown that the problem of distance in asset management may be best understood as a nuanced problem specific to different types of financial market investments. Specifically, the place of decision-making is increasingly irrelevant to capital market investments in publicly traded domestic bonds and equities. This finding recalls Clark and O'Connor's (1997) geographical typology of financial products that classified these investments as having a low to medium place-specific information content. With close to 3tn USD allocated by public pension plans to these markets, "investment-at-a-distance" (Clark and Monk, 2013a) may pose a previously underappreciated threat to IFCs' dominance (compare with Dixon and Monk, 2014). On the other hand, the results show that investments with high place-specific information content which escape wide-spread automation and digitization including alternatives, private equity and real estate, are more likely to be outsourced. In this less liquid and less efficient investment space, financial centers forming knowledge regions with deep specialized labor pools are likely to retain their competitive advantages.

These findings contribute new insights to the financial geography literature on the role of place and distance in asset management (see Clark and O'Connor, 1997, Dixon and Monk, 2014, Haberly et al., 2018). They also invite future research to complement the work of economic and financial geographers on regional specialization (Hall and Appleyard, 2009; Wójcik, 2013; Dörny, 2014; Dörny, 2016). Indeed, while the results identify the type of assets that lend themselves to insourcing, they do not formally

identify where different types of assets are outsourced to. In the future, one may wish to see more granular research done on regional and city specialization across asset classes in investment management. Finally, while the specificity of the U.S. public pension problem warranted specific attention, it would be interesting to see further research produced along this line of questioning: for instance, how other types of asset owners such as SWFs as well as pension funds outside the United States respond to the make-or-buy dilemma.

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