How Should Public Pension Plans Invest?

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Latest update: 1/1/09

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This paper was prepared for the AEA annual meeting, January 2009. We are grateful to Joshua Louria for research assistance.

1. Introduction

How public pension plan assets should be invested is an important but unsettled question. Munnell et. al. (2007) find that the share of state and local (S&L) plan assets held in equities has grown over time largely in parallel with private sector practices, from an average of about 40 percent in the late 1980s to about 70 percent in 2007. This exposure led to a loss of an estimated $1 trillion dollars following the decline of the stock market from October 2007 to October 2008 (Munnell et. al., 2008). Nevertheless, some observers endorse the standard practice of investing heavily in higher yielding but riskier equities, reasoning that the higher average returns will reduce future required tax receipts and also help to reduce under-funding over time.[1] Others advocate a more conservative approach that reduces the volatility of funding levels and the likelihood of severe shortfalls during economic downturns when government resources are already constrained (e.g., Gold, 2003).

The accounting rules for public pensions create a perverse incentive to invest in stocks: since projected liabilities are discounted at the expected return on assets[2] rather than at a rate that reflects the generally lower risk of liabilities, investing the assets in the stock market leads to a higher allowed discount rate for the liabilities, which in turn lowers the accounting-based measure of liabilities and lowers required pension contributions. This choice of discount rate contradicts the valuation principle that the risk of the quantity under consideration determines the appropriate discount rate. Novy-Marx and Rauh (2008) estimate that if liabilities were discounted at a tax-adjusted muni rate instead of at the 8 percent rate commonly used by S&L pension plans, measured liabilities would increase from $2.2 to $3.1 trillion at the end of 2005.

[1] This view was recently articulated in a different context by Charles Millard, director of the PBGC, in defense of their recent policy change to increase the share of their investment portfolio allocated to equities. "What's the Best Way for the PBGC to Invest?" Charles Millard, editorial in the *Wall Street Journal*, April 7, 2008.

[2] Government Accounting Standards Board (GASB) ruling 25, and Actuarial Standards of Practice (ASOP) item 27.

Rules that allow the smoothing of asset values over time in calculating funding requirements further reduce the incentive to reduce investment risk.

Determining optimal asset allocation requires us to specify who bears the risks and returns and how risks and returns are traded off, i.e. a budget constraint and an objective function. We begin with a simple model that illustrates the asset allocation problem facing a public fiduciary who seeks to minimize the welfare cost of distortionary taxes, subject to a funding constraint. The model is related to the deterministic analyses of Epple and Schipper (1981) and D'Arcy et. al. (1999) who consider the optimal level of underfunding for S&L pension plans in the presence of distortionary taxes. We assume that the costs of distortionary taxes are a quadratic function of the tax rate, creating an incentive to smooth taxes over time. We further assume that utility over consumption is separable from the disutility of tax distortions, and in particular that individuals can offset any effect of government asset allocation on consumption risk by rebalancing their own investment portfolios in an offsetting direction. In this framework, there is a tradeoff between the higher average return on equities that lowers average taxes, and the greater risk of equities that increases expected tax distortions.

The model also incorporates the idea first exposited by Black (1989), and following Lucas and Zeldes (2006) and Geanakoplos and Zeldes (2007), that if there is a positive correlation between stock returns and pension liabilities over longer horizons, then holding some equities can serve as a partial hedge against liabilities. We consider the sensitivity of the conclusions about optimal asset allocation to the degree of initial underfunding, to the expected level of future taxes, and to the stochastic properties of pension liabilities.

Clearly there are considerations beyond minimizing tax distortions that can influence the optimal asset allocation of assets in S&L pension plans. Although we do not model them formally, we also consider the costs and risks imposed on taxpayers and beneficiaries of different generations; constraints such as funding restrictions and balanced budget requirements on government entities; and political economy considerations such as how unexpectedly high or low returns would be allocated between taxpayers and beneficiaries, and how asset allocation affects the transparency of the system, all of which seem to point toward a policy of matching pension assets and liabilities.

There has been little formal analysis of the appropriate pension asset allocation in the state and local context, although more has been written about the tradeoffs for private sector plans (see, e.g., Harrison and Sharpe (1983) and references therein). Considerations affecting private sector plans, such as increasing the option value of PBGC insurance, are not relevant for state and local governments. Public plans may also be less concerned about the illiquidity of pension plan assets. Nevertheless, the stochastic optimizing framework used in the model is consistent with the asset and liability management (ALM) approach that has been adopted by some private sector fund managers, and that we believe also is relevant to the public sector.

In Section 3 we examine the asset allocation behavior of state and local pension plans, using the State and Local Pension dataset compiled by the Center for Retirement Research (CRR) at Boston College and data from the Public Fund Survey. We find little variation in investment strategies across plans, and that cross-section differences are not easily explained by economic factors expected to influence asset allocation, such as whether a plan has a larger share of active workers, assumed inflation, or the degree of underfunding, although the share of equity is positively related to assumed wage growth.

2. Modeling optimal asset allocation for public pensions

A natural starting point for any analysis of optimal asset allocation is with a reminder that in a completely frictionless market, asset allocation is irrelevant. The Modigliani-Miller theorem implies that taxpayers will take the risks and returns of pension assets and liabilities fully into account when forming their private portfolios, and can therefore undo any allocation of government pension assets by making offsetting changes in their personal portfolios. Thus if the government invests excessively in equities they can shift their own portfolios towards bonds. Further, Ricardian equivalence says that the timing of non-distorting tax collections is irrelevant because taxpayers only face a lifetime budget constraint; they can save, borrow and lend to offset any effect of tax policy on the timing of consumption. In the same spirit, Epple and Schipper (1983) point out that to the extent that underfunded S&L pension liabilities are reflected in lower local land values, that the cost of current worker services is borne by current residents, mitigating concerns about fairness to future generations of taxpayers.

These benchmarks make clear the need to be explicit about the frictions that can cause asset allocation to be relevant. In the model below, we maintain the Modigliani-Miller assumption that S&L asset allocation has no direct effect on the dynamics of personal consumption, but relax the Ricardian equivalence assumption by incorporating a cost of distortionary taxes.

2.2 Liabilities

The costs and risks passed on to taxpayers are based on the difference between plan assets and liabilities. Therefore optimal asset allocation will depend on the risks and returns of the asset-liability gap rather than on the properties of assets alone.

The typical S&L defined-benefit pension plan promises retired workers a life annuity that is calculated as a function of the worker's years of service and final salary. The benefit is often but not always indexed to inflation.[3] Unlike in the private sector, it is illegal to change plan terms for existing workers, and benefits are often protected by state constitutions.

As with private sector plans, S&L pension liabilities can be measured in a variety of ways. An important question is when a liability is considered to have accrued. The two most common measures are the accrued benefit obligation (ABO), which is based on projected future benefits based on current salary and years worked, and the projected benefit obligation (PBO), which takes into account expected future salary increases. S&L pension liabilities are generally reported on the PBO basis, which seems consistent with these provisions limiting future plan changes for existing employees.[4] A related and more complicated issue that we do not take a stand on here is whether in choosing an optimal funding and asset allocation policy, projected future obligations that are anticipated but that have not yet been accrued should be taken into account.

Measured liabilities are sensitive to the assumed discount rate, which should reflect the systematic risk of the liabilities. As emphasized by Munnell and Soto (2007) and Brown and Wilcox (2008), S&L pensions offer retirees a very safe stream of income in the sense that there are strong contractual and legal protections against default on promised benefits. However, both plan participants and S&L plan sponsors bear considerable risk arising from uncertainty about the future salaries that will determine contractual benefits.

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[3] To be added: calculation of % of state plans that include explicit indexing.

[4] Bulow (1982) points out that if total compensation is determined by supply and demand for labor, in equilibrium wages will grow more slowly for workers with jobs that have a more heavily back-loaded and wage-linked pension. This has been interpreted as a justification for an ABO-based liability measure, but as discussed in Lucas and Zeldes (2006), in the context of asset and liability management a broader measure of liabilities may be more appropriate.

Assessing liability risk, both to determine the correct discount rate and for hedging purposes, is not easy. Although the short-run correlation between stock returns and the growth in aggregate labor earnings is low, there is theoretical support and empirical evidence that supports higher long-run correlations (e.g., Benzoni et. al., 2007). Lucas and Zeldes (2006) show that when labor earnings growth and stock returns are positively correlated over longer horizons, stocks can serve as a hedge against earnings-linked pension benefits, and the appropriate discount rate for pension liabilities also reflects this market risk. An implication is that obligations to older workers and retirees are more like bonds and can be valued and hedged as such, but that obligations to younger workers have risk and return characteristics that are more like stocks. Geanakoplos and Zeldes (2007) apply these ideas to the valuation of social security obligations, and show that taking priced liability risk into account has a significant effect on present value estimates. In the intertemporal optimizing framework developed below, the risk associated with pension liabilities affects the optimal allocation of pension assets, and is incorporated via the assumption of a positive correlation between equity returns and pension obligations.

Optimal asset allocation will also depend on whether liabilities after retirement are fixed in real or nominal terms. If the only type of bonds available to pension funds are nominal bonds (rather than indexed bonds), then stocks may provide a better long-run inflation hedge, implying a hedging role for stocks even for liabilities associated with separated and retired workers. Although short term government bonds might be a better inflation hedge than stocks, their low returns due to their high liquidity value is an offsetting consideration. In the model we abstract from the effects of inflation and indexing.

2.3 A simple asset allocation model

We posit a simple two-period asset allocation model where the objective is to minimize the expected present value of distortionary taxes. We assume that consumption is additively separable from the effect of tax distortions, and that asset markets are complete. We first take the initial tax bill, initial level of fund assets and liabilities, and required contributions into the pension fund as given, and solve for optimal first period asset allocation. We then consider the joint determination of the optimal tax-financed pension funding level and asset allocation. In both cases, we assume that future non-pension taxes are known with certainty; that future liabilities are stochastic and correlated with stock returns, with a correlation coefficient ρ and standard deviation $\sigma(L)$; and that taxes are distortionary.[5] Assets are invested in two types of securities, equities and bonds. Bonds earn the constant risk-free rate, r_f. Stock returns are stochastic with an expected return of $E(r_s)$ and standard deviation $\sigma(r_s)$.

The simplest representation of social welfare that captures the interaction of asset allocation with distortionary taxes is with a discounted quadratic loss function.[6] An optimizing fiduciary chooses the fraction of pension assets, λ, invested in stocks to minimize the expectation:

$$E\left[(T_1 + \omega/2\, T_1^2) + \beta(T_2 + \omega/2\, T_2^2)\right] \tag{1}$$

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[5] Debt can be used to change the timing of taxes, but debt payments too must ultimately be covered by taxes. To the extent that state and local governments operate under balanced budget restrictions, it is reasonable to assume that taxes rather than debt is the primary means by which shortfalls would be financed.

[6] For simplicity other consumption is taken to be separable from taxes in the objective function. Clearly this is not a neutral assumption, since the growth rate of consumption influences the optimal timing of taxes; and for a more general utility representation consumption risk can affect the optimal risk and return tradeoff in the pension asset allocation decision.

Where T_i is total taxes paid, θ_i is other distortionary taxes, A_i are pension assets, and L_i are pension liabilities, all at time *i,* where $i = \{1,2\}$. β is a subjective discount rate. We assume that a fixed share, α_i, of current underfunding must be financed with incremental taxes, which is consistent with the amortization rules that govern annual governmental contributions into the fund related to underfunding[7] Total taxes can be written as:

$$\begin{aligned} &T_1 = \theta_1 + \alpha_1 (L_1 - A_1) \\ &T_2 = \theta_2 + \alpha_2 (L_2 - A_2) \\ &where \\ &A_2 = \lambda\big(A_1(1-\alpha_1) + \alpha_1 L_1\big)(1+r_s) + (1-\lambda)\big(A_1(1-\alpha_1) + \alpha_1 L_1\big)(1+r_f) \end{aligned} \tag{2}$$

The first order condition for optimality over the share of assets invested in equities is:

$$E\{r_s - r_f + \omega(\theta_2 + \alpha(L_2 - \lfloor \lambda X(1+r_s) + (1-\lambda)X(1+r_f)\rfloor)) \bullet (-(1+r_s) + (1+r_f))\} = 0 \tag{3}$$

where the invested funds are given by $X = \alpha_1 (L_1 - A_1) + A_1$. Rearranging and solving for λ, we have:

$$\lambda = \frac{\dfrac{E(r_s) - r_f}{\omega\alpha_2} + \theta_2 \dfrac{(E(r_s) - r_f)}{\alpha_2} + E\big(L_2(r_s - r_f)\big) - X(1+r_f)\big(E(r_s) - r_f\big)}{X\big(E(1+r_s)^2 - (1+r_f)^2\big)}. \tag{4}$$

From (4), it is easy to see that the share held in stock increases with the equity premium, and with the correlation between future liabilities and stock returns through the term $E(L_2 r_s)$. With a positive equity premium, it also increases with anything that is positively related to future total tax liabilities, including the size of other future tax liabilities, future pension liabilities, and the inverse of the speed at which the funding gap must be closed, α_2[8]. This reflects the increasing benefit of the higher average rate of return on stocks when future taxes are high. The share of

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[7] Underfunding is typically amortized over 30 years, and asset values are smoothed over 4 or 5 years.

[8] With only two periods, since assets must eventually cover liabilities, it is natural to fix α_2 to 1 in interpreting this condition here.

stock decreases in the volatility of stock returns, via the term $E(1+r_s)^2$, and in the level of initial pension assets. Notice that with quadratic utility it is generally optimal to hold some stock because of the equity premium, but the optimal share of stock decreases in the curvature parameter ω. It is optimal to invest exclusively in risk-free assets only if risk aversion approaches infinity, future other tax liabilities are set to zero, and the plan is fully funded.

We now turn to the simultaneous determination of asset allocation and the initial funding level. Equation (4) continues to determine the optimal asset allocation, but now there is an additional choice variable, ε, which is an increment to time 1 taxes that is invested in plan assets. It creates an offset to time 2 taxes equal to $\varepsilon(1+r_A)$, where $r_A = \lambda r_s + (1-\lambda)r_f$. Then the first order condition with respect to ε is:

$$\varepsilon = \frac{E\left(\beta(1+r_A)-1\right)}{\omega\beta E(1+r_A)^2} + \frac{E\left(\beta(1+r_A)T_2 - T_1\right)}{\beta E(1+r_A)^2} \qquad (5)$$

The first term in (5) shows that the optimal amount of prefunding through taxation increases with the expected return on assets but decreases with risk aversion and the volatility of returns. The second term in (5) reflects the desire to equate marginal tax rates across time, so that current collections increase when anticipated future total taxes -- adjusted for time value, expected returns, and asset risk -- are higher than current taxes. Notice also ε increases in the correlation between r_A and T_2.

Solving (4) and (5) simultaneously for λ and ε determines the optimal investment policy. We should have a closed form solution for λ and ε in the next draft (or numerical examples), but we believe that the qualitative results described above based on the 2 FOCs will continue to hold.

2.3 Other factors that influence desired asset allocations

We have not taken into account other potentially important factors influencing the optimal asset allocation that are more difficult to model formally. In this section, we describe these additional factors and discuss whether these would be likely to increase or decrease the percentage of pension assets that should be invested in equities.

Factors that push toward a lower allocation to equities

First, because state and local taxes are often deductible from Federal taxes, assets invested in pension plans on behalf of taxpayers offer a tax advantage. This implies that the federal tax burden on taxpayers is minimized by investing the pension assets in the most highly taxed asset, namely taxable bonds (Bader and Gold, 2007).

Second, unexpectedly high or low asset returns may not be efficiently allocated by the political process. Peskin (2001) argued that the asymmetry in the receipt of returns, i.e. that pension recipients receive the upside but that taxpayers must bear the downside, should lead pension funds to choose assets to match liabilities as closely as possible.[9]

Third, if other factors influencing tax rates (θ_2 above) are correlated with equity returns, this will reduce (or possibly eliminate) the attractiveness of equity investments. We plan to elaborate on this further in the next draft of this paper.

Finally, as discussed above, government accounting guidelines allow the discount rate on liabilities to be equal to the expected return on assets. Increasing the equity share raises the expected return on assets which lowers the reported value of existing liabilities and new pension promises relative to the market value (Novy-Marx and Rauh, 2008). This worsens the transparency of the pension system and leads to inefficiencies. While current workers and state

[9] We think that this would be less of an issue if the arrangement were fully transparent and spelled out by contract, because it could then be offset with lower average benefits or higher employer contributions.

and local officials might prefer the lower transparency, future taxpayers will not. From a social welfare perspective, this is a reason to choose lower equity shares (or better accounting rules).

Factors that push toward a higher allocation to equities

Some taxpayers may be constrained from holding any or more equities in their private portfolios, or may face fixed costs of learning about stock market investments. In this case it may be efficient for the local government to hold equities on their behalf through pension fund investments. In addition, if there is a lack of intergenerational connections between taxpayers, there may be scope for pension funds to engage in intergenerational risk-sharing, effectively exposing future generations to todays' equity returns.

Factors that push in uncertain or conflicting ways

It arguably makes more sense to equate the marginal cost of tax levies through the rest of the tax code, rather than through the pension funding mechanism. In addition, aversion to changing tax rates (in addition to high tax rates), along with balanced budget requirements that prevent smoothing with debt issuance, may alter the incentives. Finally, a lack of intergenerational connections may lead to a failure of Ricardian equivalence.[10] These factors still need to be explored further.

Taken together, these other factors likely decrease the attractiveness of equity allocations, and increase the attractiveness of matching assets and liabilities, even if it means forgoing the equity premium and ignoring the benefits of moving taxes into lower utility cost time periods.

3. Empirical Evidence

[10] D'Arcy et. al. show that faster growing localities should have larger levels of underfunding if the marginal utility of future consumption is expected to be lower.

In this section we describe the asset allocations for a large sample of state and local plans, and consider plan characteristics that might explain the differences across plans.

3.1 Data description

We primarily rely on data collected by the CRR at Boston College for 2006. The CRR dataset[11] contains extensive information on 109 state and 87 local pension plans, including assets; liabilities; asset allocation (equities, bonds, real estate, cash and short term, alternative investments, and other); assumed asset returns, inflation rates, and wage growth; the type of COLA clause if any, governance indicators; the number of active, retired and inactive members; and other actuarial assumptions. Combined plan assets total $2.6 trillion. Local plans are much less likely to report detailed information, limiting the inferences that can be drawn about those plans.

To look at changes in asset allocation between 2006 and 2007, we merge the CRR data with more limited data from the Public Fund Survey (PFS) for 2007, which also reports asset allocation, but includes more limited other information.

3.2 Results (section below is still preliminary and will be expanded in future drafts).

On average, S&L plans held 58.6 percent of pension assets in equities, 26 percent in bonds, and 6 percent in real estate in 2006.[12] There is remarkably little variation in equity shares, with three quarters of all plans holding between 50 and 70 percent of their assets in equities.[13]

[11] Importantly, the CRR data adjusts reported assets for the effects of smoothing rules to produce actual asset values. The complete data and documentation can be found at:
http://crr.bc.edu/frequently_requested_data/state_and_local_pension_data.html

[12] Unless otherwise stated, all averages are across plans and not weighted by plan size. Weighted results will be reported in a future draft.

[13] Equity holdings have a standard deviation of 9.7 percent for state plans and 12.6 percent for local plans.

As previous studies have noted, plans tend to be underfunded, with state plans on average 80.7 percent funded, and local plans 84.7 percent funded, both with a standard deviation of about 20 percent.

The analysis in Section 2 suggests that the equity share should be positively related to the percentage of active participants, due to the long-run correlation between salaries and stock returns. But in the data we find the opposite to be true. The correlation between the equity share and the percentage of active participants is -.18 for state plans and -.06 for local plans (significance levels to be added).[14] We find a positive correlation between the equity share and the assumed inflation rate of .26 for state plans, but a negative correlation of .25 for local plans. The equity share has a correlation of .16 with the actuarial funding ratio for state plans, but a negligible correlation for local plans. This positive correlation is at variance with the idea that more underfunded plans seek higher expected returns. A multiple regression analysis (to be included in a subsequent draft) similarly suggests that variation in the equity share is not well explained by variables that theory suggests should be important for asset allocation.

Interestingly, there is almost no correlation between the equity share and the assumed rate of return on plan assets, even though one would expect a higher expected return on average for plans holding more equities. In fact the assumed rate of return on assets clusters tightly around 8 percent, and has persisted for many years (Munnell et. al., 200?) despite large changes in nominal interest rates over that time. The 8 percent assumption is also common for private sector plans. In addition, there is almost no correlation between the assumed inflation rate and the assumed nominal return on assets, indicating that those plans assuming a high inflation rate tend to assume a lower real return on assets, and vice-versa.

[14] However, the wage growth assumptions have a consistent and significant positive correlation with equity share, which is perhaps consistent with the idea that more wage sensitive liabilities are more equity-like. (??)

4. Conclusions [still tentative and in need of revision]

Our analysis of the asset allocation problem facing S&L pension plans suggests two distinct reasons for holding a portion of pension assets in higher returning equities. In the presence of distortionary taxes, the equity premium produces higher average returns that reduce the need to raise revenues in the future through distortionary taxes, even though with a convex loss function the volatility associated with equities reduces welfare by increasing the volatility of taxes. In this framework the optimal asset allocation also depends on the level of current and future underfunding, and in general both underfunding and the asset mix would be determined simultaneously to minimize tax distortions. The optimal share in equities also increases in the correlation between risky asset returns and future liabilities, also induced by tax smoothing considerations.

Although the formal model emphasizes distortionary taxes, there are other considerations that may be equally important in determining the optimal policy. The tight distribution of observed allocations around 60% equity suggests that in practice allocation decisions are based on other criterion than those emphasized here.

References

Bader, Lawrence N., and Jeremy Gold (2007), "The Case Against Stock in Public Pension Funds," Financial Analysts Journal, vol 63, no. 1.

Benzoni, L, P. Collin Dufresne, and R. Goldstein (2006), "Portfolio Choice over the Life-cycle when the Stock and Labor Markets are Cointegrated,"

Black, Fischer, (1989), "Should You Use Stocks to Hedge Your Pension Liability?" *Financial Analysts Journal*, 10-12.

Brown, Jeffrey, and David Wilcox (2008), "Discounting State and Local Pension Liabilities," Mimeo, University of Illinois.

Bulow, Jeremy (1982), "What are Corporate Pension Liabilities? *The Quarterly Journal of Economics*, Vol. 97, No. 3., pp. 435-452.

D'Arcy, Stephen, James Dulebohn, and Pyungsuk Oh. (1999), "Optimal Funding of State Employee Pension Systems." *Journal of Risk and Insurance* 66(3).

Epple, D. and K. Schipper (1981), "Municipal pension funding: A theory and some evidence," *Public Choice*, vol. 37 no. 1

Geanakoplos, John and Stephen P. Zeldes (2007), "The Market Value of Accrued Social Security Benefits." Mimeo, Columbia University Graduate School of Business.

Giertz, J. Fred and Leslie E. Papke (2007), "Public Pension Plans: Myths and Realities for State Budgets." *National Tax Journal* LX(2): 305-323.

Gold, Jeremy (2003), "Risk Transfer in Public Pension Plans." In *The Pension Challenge: Risk Transfers and Retirement Income Security*, eds. Olivia S. Mitchell and Kent Smetters, 102-116. Oxford, England: Oxford University Press.

Harrison, M. and W. Sharpe (1983), "Optimal Funding and Asset Allocation Rules for Defined-Benefit Pension Plans," in Financial Aspects of the United States Pension System edited by Zvi Bodie, NBER book.

Lucas, Deborah and Stephen P. Zeldes (2006), "Valuing and Hedging Defined Benefit Pension Obligations: The Role of Stocks Revisited," Mimeo, Columbia University Graduate School of Business

Munnell, A., K. Haverstick, and J. Aubry (2008), Why Does Funding Status Vary Among State And Local Plans? Center for Retirement Research at Boston College Brief

Munnell, A., and M. Soto (2007), "State and Local Pensions Are Different From Private Plans," Center for Retirement Research at Boston College Brief

Novy-Marx, Robert and Joshua Rauh (2008), “The Intergenerational Transfer of Public Pension Promises,” manuscript, University of Chicago, May.

Peskin, Michael (2001), “Asset-Liability Management in the Public Sector,” in **Pensions in the Public Sector**, Olivia Mitchell and Ediwn Hustead, Eds., Philadelphia, PA: University of Pennsylvania Press.