

Evidence on Affordability From Consumer Expenditures and Employee Enrollment in Employer-Sponsored Health Insurance

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Executive Summary

This report considers the important issue of affordability of insurance under the new health reform law in Massachusetts. This is a controversial issue with no bright-line definitions available. In this paper I provide important new evidence on this question using survey data on both expenditures and on enrollment on employer-provided health insurance.

I do so using two different approaches. The first is to measure the resources available to families at different income levels after paying for necessities. The second is to examine enrollment decisions in employer-provided health insurance by income level and by premium. If individuals are voluntarily enrolling in employer-provided insurance, then they surely can afford that coverage, so this provides a means of assessing directly what individuals consider “affordable”.

Expenditure Analysis

I use data from the Consumer Expenditure Survey (CEX), the nation’s leading data source on consumption information, to measure expenditures on necessities relative to available resources for families in Massachusetts. The measure of expenditures follows that of the Family Self-Sufficiency Standard and that used by the Greater Boston Interfaith Organization (GBIO). Comparing necessities expenditures to family income, my results suggest somewhat more room for affordability of premiums.

This approach has an important limitation, however: for most low income families, reported income is well below total consumption expenditures. Existing evidence suggests that this mostly arises from under-reporting of income. Therefore, the appropriate measure of affordability assesses whether necessities plus insurance premiums are greater than total *expenditures*, not income. At the same time, expenditures may exceed income because of borrowing. To address this concern, I measure resources as expenditures minus debt holdings. Subtracting off debt from total expenditures is a conservative means of addressing the concern that consumption exceeds income due to borrowing. Any excess of expenditures minus debt over income should represent income under-reporting.

I begin by computing the share of available resources devoted to necessities, separately by income group. Those results are presented in **Table 1**, for both the median family and the family at the 75th percentile. I then turn to measuring the share of each income group that can afford premiums, either at CCHIP levels if below 300% of poverty, or at MCC costs of either \$160 or \$350/month if above 300% of poverty. Out of

pocket costs are included at the level that they would be incurred by the typical uninsured individual enrolled in these plans. It is inappropriate to include out of pocket costs for very sick individuals, since these are exactly the type of individuals who can't afford *not* to have health insurance. **Table 2** shows the share of each income group that can afford premiums plus average out of pocket costs, at different levels of MCC premiums.

The conclusions from these two tables are striking:

- Families below 1.5 times the poverty line spend all of their reported income on necessities, leaving little room to bear insurance costs. Yet necessities are only 75-80% of available resources for this group, leaving room for modest premiums. That is, among families with incomes between 100 and 150% of the poverty line, 94% have at least the \$18/adult/month in resources available to pay for CCHIP premiums.
- Families between 1.5 and 3 times poverty spend most of their resources on necessities, but most can still afford the modest premiums charged them under Commonwealth Care. For example, among families with incomes from 250% to 300% of the poverty line, 94% have more than \$106/adult/month in resources available to pay for CCHIP premiums.
- The typical family above three times poverty has substantial income or resources beyond what is devoted to necessities. Eighty-five percent or more of families above three times poverty can afford premiums of \$350 per month; that is, 85% or more of families have resources beyond necessities of \$350/month or more.

Enrollment Analysis

If individuals voluntarily enroll in employer-provided insurance when it is offered, then such insurance cannot be considered unaffordable. As **Table 3** shows, in fact, the vast majority of individuals offered employer-provided insurance do enroll in that coverage. This table shows the source of insurance coverage among those offered insurance from the Medical Expenditure Panel Survey (MEPS), one of the nation's leading surveys on health insurance coverage and expenditure. Even among those below the poverty line, when offered employer provided insurance, over 60% enroll, and only 25% are without coverage from any source. At current employer-provided insurance premium levels (nationally averaging \$60/single or \$250/family), insurance is clearly affordable for most workers to whom it is offered.

In fact, employer-provided insurance is purchased by a majority of workers even when the premiums rise to quite high levels. I use data from the Kaiser/HRET survey of firms, the largest nationally available sample of premiums and enrollment across firms, to show how enrollment rates vary as premium levels rise (**Table 4**). While enrollment does fall as premium levels rise, the fall off is relatively slow. Indeed, even at premium levels above \$325/individual or \$975/family, about 2/3 as many employees enroll as when insurance is free.

Enrollment at high premium levels is substantial even for firms with many low wage workers. **Table 5** shows enrollment in the Kaiser/HRET data among workers in firms where more than a 35% of the workers earn less than \$20,000 per year. Even in such firms, when the premium rises to over \$200/month per individual, enrollment remains three-quarters as high as when coverage is free. Using comparable employer data from Massachusetts (which has more detail on worker wages), the results are even more striking: among firms in Massachusetts where 90% or more of the workers earn less than \$30,000 per year, almost two-thirds enroll in insurance at a median premium of \$100 for an individual. Clearly, even for these low wage firms, insurance is considered affordable if offered.

Conclusions

The lessons from this set of findings are clear:

- Individuals eligible for Commonwealth Care can afford their premiums – and could even afford somewhat higher levels
- Those over 300% of poverty can afford to buy minimum creditable coverage.

I. Background

Perhaps the most difficult issue with which the Connector will struggle is the decision about whether insurance is affordable under the individual mandate. This is inherently a subjective decision, but there are data that help inform this decision. In this memo, I focus on several such sources of data.

There are basically two different approaches to defining affordability. The first is to consider the other necessary budgetary requirements on families. Insurance payments would only be considered affordable if they do not prohibit families from purchasing the other necessities that are required for living in Massachusetts.

The second is to define insurance as being affordable if it is purchased voluntarily, and then to consider the decision of employees to enroll in employer-sponsored insurance. Presumably, if insurance was unaffordable to an employee, the employee would not purchase that coverage from their employer. Thus, if employees enroll in employer-provided insurance, under this definition, it is affordable.

Both of these approaches have important limitations in theory, as well as in practice. Nevertheless, by combining available data on both approaches, clear lessons emerge for our affordability analysis.

There is one general point that should be emphasized with any analysis of affordability for a broad class of citizens (e.g. individuals between 300% and 400% of the poverty line). An item is clearly not affordable if no one in a group can afford it. But, by the same token, it is wrong to say an item is unaffordable if anyone in a group can't afford it. In considering affordability for a group, we need to establish a sensible benchmark whereby insurance is considered affordable if "most of" a group can afford it. We can disagree about what "most of" means, but it would be wrong to define "most of" *only* as "very close to 100%".

II. Budget-Based Approach to Affordability

Framework

The first approach I consider is the budget-based approach. In theory, this involves setting some standard for expenditures on "necessities", and then assessing whether there is sufficient additional income to pay for health insurance and other health care needs. Implementing this approach, however, raises several difficult issues:

What are "necessities"? The first fundamental question is which purchases are *more necessary* than health care or health insurance. This is inherently subjective and will by definition vary from family to family. Where do we draw the line?

The “Family Economic Self-Sufficiency Standard” is an attempt to make such judgments. They consider necessary expenditures as:

- Child care
- Food
- Health Care
- Housing
- Taxes
- Transportation
- Miscellaneous (calculated as 10% of other costs)

In the absence of a better definition, I will rely on this classification of necessities for my analysis. This analysis may overstate affordability of health insurance, in that some other categories of spending may be necessary for life in Massachusetts. However, it is satisfying to note that when the Greater Boston Interfaith Organization (GBIO) asked individuals about the cost of “other necessities”, the values that were reported were almost exactly 10% of the FESSS categories of necessities, validating (to some extent) the “miscellaneous” category approach.

On the other hand, this approach likely understates affordability of health insurance in two respects. First, it does not differentiate “necessary” from “unnecessary” expenditures within these categories. For example, it considers total food spending, regardless of whether the consumption was done at home or a nice restaurant, as a necessity; if budgets were pressured by health insurance, individuals might spend less on food without sacrificing caloric intake.¹ Second, it implicitly assumes that health care is *less important* than these other categories; that is, that if individuals have to spend their resources on these other categories, then they shouldn’t have to spend resources on health care. It is unclear why health insurance should take a lower position on the priority scale than other necessities.

How to measure expenditures on necessities? There are two basic approaches to measuring expenditures on necessities. The first, followed by the creators of the FESS measure cited above, is to make best guesses as to what individuals would spend in each of these categories, based on available data such as the cost of child care or market rents. The second is to use actual expenditure data to assess what individuals spend in these categories, using nationally representative data from the Consumer Expenditure Survey (CEX).

I prefer the second approach because it involves fewer judgments and instead reliance on actual expenditures that determine affordability. That advantage is most vividly illustrated by expenditures on child care. As I discussed in more detail in an earlier report, the FESS suggests child care costs for a family with two children of \$577

¹ Indeed, recent research suggests that the elderly, when they retire, consume the same calories on a much lower budget due to food self-preparation. See Aguiar, Mark and Erik Hurst, “Consumption vs. Expenditure,” NBER Working Paper #10307, February 2004.

to \$828 per month, or \$6924 to \$9936 per year. Yet, among families with some child care expenditures in Massachusetts in the Consumer Expenditure Survey, the median expenditure is only \$1535/year! Only about 10% of families in the data spend as much on child care as is suggested by the FESS calculations, and these are all fairly high income families. Among families with incomes below \$60,000, for example, there isn't a single family in the data that spends more than \$4400 on child care.

What about low income families who report spending more than their income? A major issue with any such analysis is that many low income families report expenditures that add up to more than their reported income. This fact has been widely noted in the analysis of expenditure data. This seeming inconsistency is explained by either (a) misreporting of income (e.g. not reporting "under the table" income, or simple errors in income reporting), (b) borrowing from other sources to fund consumption, or (c) spending out of savings. This question was analyzed carefully by Bruce Meyer of the University of Chicago and James Sullivan of Notre Dame University using two different sources of expenditure data to study single mothers.² For this sample at least, they find that there is little savings or borrowing, and focus on explanation (a) as the most likely. This suggests that reported expenditures, rather than income, may be the best proxy for resources for low income groups. This approach is consistent with a long-standing practice in economics to rely on expenditures as the best measure of underlying well-being. It is also consistent with a large sociological literature on unreported sources of income for low income families.³

I will therefore adopt two approaches for this analysis. The first will be to consider affordability relative to income, ignoring these issues of reporting. I find this approach much less informative than the alternative suggested next, but I report the results for comparison purposes with earlier studies. The second, preferred measure, will be to consider affordability relative to a measure of available resources which accounts for the fact that income may be mis- or under-reported. As noted, the standard approach to doing this would be to use expenditures as the measure of available resources.

The criticism of such an approach would be that it ignores the possibility that individuals are borrowing to finance consumption spending that is above total income. For some individuals, this would be a rational response to varying income across time: for example, law students should have expenditures greater than income when in law school, with the understanding that they will easily pay off that debt with their later income. For other individuals, however, this may reflect an unexpected shock that can only be financed by borrowing. For such individuals it might be inappropriate to say that their available resources are their expenditure, since that expenditure involves taking on debt that they won't easily be able to repay.

² Meyer, Bruce and James X. Sullivan, "Consumption, Income and Material Well-Being After Welfare Reform," NBER Working Paper #11976, December 2006.

³ See, for example, Kathryn Edin and Laura Lein, *Making Ends Meet: How Single Mothers Survive Welfare and Low-Wage Work*. New York: Russell Sage Foundation, 1997.

To address this concern, I use a more conservative approach to measuring total resources: I use the maximum of (a) income or (b) consumption *minus* reported total uncollateralized debt (e.g. credit card debt), a measure I call “available resources”. By subtracting debt from consumption, I account for the fact that consumption may be higher than income because individuals are borrowing. This is a conservative approach because, in principle, we should reduce consumption only by the borrowing done *this year* to finance that consumption. In practice, we only know his total debt so I (conservatively) subtract the total debt.

Some mathematics can readily illustrate these different approaches. The approach of assessing affordability relative to income amounts to asking whether:

$$(1) \quad \text{Income} > \text{Necessities} + \text{Premiums}$$

This, as noted, has the problem that income is under-reported, so that there will be artificially low affordability reported. The standard economics approach would be to instead assess affordability by asking whether:

$$(2) \quad \text{Expenditures} > \text{Necessities} + \text{Premiums}$$

But this has the problem that some of expenditures may be financed by taking on debt, and those expenditures might be considered “unaffordable” (although, as in the case of the law student, they clearly are not). To address this, I create an alternative measure:

$$(3) \quad \text{Expenditures} - \text{Debt} > \text{Necessities} + \text{Premiums}$$

Rewriting this, my approach is equivalent to saying that

$$(4) \quad \text{Expenditures} > \text{Necessities} + \text{Premiums} + \text{Debt}$$

So that I am allowing for the fact that debt holdings count against the affordability of health insurance premiums.

Some examples are constructive to motivate this approach:

- Jane has income of \$20,000 but reported consumption of \$25,000. She has no debt. She is most likely under-reporting her income and therefore the appropriate measure of available resources is \$25,000
- Jim has income of \$20,000, reported consumption of \$25,000, but debt of \$3000. Jim spent more than his income, but to some extent that was financed by his borrowing. So his available resources are \$22,000 (at least, since some of the \$3000 debt was not incurred this year but in prior years).
- Lucy has income of \$20,000, reported consumption of \$25,000, but debt of \$7000. Her available resources are her income of \$20,000.

In summary, individuals who have consumption greater than income are likely underreporting their available resources when they report their income. It is possible, however, that consumption exceeds income because of borrowing. By subtracting debt holdings from consumption, then comparing that measure to income, I conservatively adjust for such borrowing-financed consumption. Available resources is therefore the more appropriate measure for assessing affordability. Nevertheless, I will report results relative to income as well for comparison to other analyses.

What about out of pocket medical costs? Premiums are not the only cost incurred when individuals purchase insurance. Particularly for those choosing the minimum creditable coverage, out of pocket spending can be considerable. It is unclear whether out of pocket costs should be incorporated into a discussion of affordability of insurance. After all, individuals face more out of pocket risk *without* insurance than they do *with* coverage. Thus, if an individual is very ill and faces large out of pocket costs under a minimum creditable coverage plan, they would have faced at least those same out of pocket costs, and likely more, had they remained uninsured. So it would be wrong to say that those out of pocket costs were responsible for making insurance unaffordable. That is, it is nonsensical to argue that very sick individuals can't afford insurance because they will have large out of pocket costs under the insurance plan; indeed, the problem is that these individuals can't afford *not* to have insurance.

At the same time, if insurance is not comprehensive, then there are cases where out of pocket spending risk should be incorporated into affordability discussions. Consider an individual who has resources of \$20,000, necessity costs of \$18,000, and currently spends \$2000 on out of pocket medical costs. If this individual were mandated to buy insurance that were comprehensive (covering all medical costs), they could afford it so long as that insurance cost less than \$2000 per year. But if they were mandated to buy insurance that cost \$2000 per year *and* had a \$2000 per year deductible, then the insurance would not be affordable, as their total medical spending would rise by \$2000 per year.

I therefore pursue a middle ground approach: simulating the likely expenditures of individuals on out of pocket medical costs and add that to premiums to obtain an "effective" cost of insurance. These simulations use data from the Medical Expenditure Panel Survey (MEPS), which is the largest nationally representative set of data on complete medical expenditures for individuals. Most important, I use these data to simulate out of pocket exposure under various insurance plans for the median *uninsured* household. Uninsured individuals use much less medical care than do insured individuals. If individuals spend more out of pocket once insured than they did when uninsured, however, that presumably should not count against the affordability of insurance, but rather as a cost that individuals are willing to incur to get more health care. Insurance cannot be counted as unaffordable simply because individuals choose to get more medical care once insured.

In fact, the median single uninsured person uses no medical care during the year, so that there is no out of pocket medical spending. For the median family, expenditures

under plan type II are \$45, and under plan type III are \$80. For those above 300% of poverty, I simulate their expenditures in a prototype minimum creditable coverage plan, which has the following features:

- Deductible of \$2000 individual/\$4000 family
- 3 primary care physician visits exempt from deductible at copay of \$25
- No drug coverage
- All other spending included in deductible. After deductible ends, 20% coinsurance.
- Out of pocket maximum (adding all elements of spending) of \$5000 individual/\$10,000 family

These simulation yield out of pocket costs of \$310 per year for this plan for families. Once again, for singles, the estimated out of pocket costs are zero since they use no care when uninsured.

Data

The data for this analysis is the sample of Massachusetts households from the Consumer Expenditure Survey (CEX), which is widely considered to be the best source of expenditure data for the United States. The CEX presents data for over 600 categories of household expenditures. I use my judgment to group expenditures into the categories of necessities listed above. To ensure sufficient sample size, the CEX from 2000-2004, the latest available data, are combined; all data are in \$2005 for analysis purposes. Families where all family members are over age 65 are excluded, since the affordability analysis is relevant only to the non-elderly.

One important expenditure which is not well represented in the CEX is taxes paid. To compute taxes, I use individual information along with a tax calculator (available at www.nber.org/taxsim) to compute state and federal income taxes. Information on family earnings is used to compute payroll taxes.

An important feature of the Massachusetts law is that firms with 11 or more employees are mandated to offer Section 125 plans which allow individuals to pay their premiums on a pre-tax basis. Using survey data from the state, I estimate the share of uninsured in each income range working for firms of more than 11 or more employees (which ranges from 50-66%). I then assign families within each income range to pre-tax or post-tax status according to these probabilities. If families are assigned to pre-tax status, I reduce their premiums by the federal + state + FICA tax rate.

This Massachusetts sample is divided into eleven income groups: those below the poverty line; 50% increments of the poverty line between 100% and 500% of poverty; and those above 500% of poverty. For each group, I compute a number of statistics to summarize the information about affordability:

1) Percent of income (or available resources) devoted to necessities for the median household and for the 75th percentile household in the sample.

2) Share of households who can “afford” health insurance premiums and out of pocket spending. For this calculation I compute the share of households for which necessities plus premiums costs plus out of pocket spending lie at or below income (or available resources). Premiums are set at the CCHIP premium schedule plus Mass Health charges for any children below 300% of poverty. Above 300% of poverty, I use a range of premiums from the recently produced estimates of basic level coverage in the connector: a low of \$160/month (corresponding to the cost of the lowest cost MCC plan without prescription drugs for a 35-39 year old) and a high of \$350/month (corresponding to the cost of the lowest cost MCC plan with prescription drugs for a 56+ year old). I assume that coverage of a couple costs twice that of single coverage, and that family coverage is three times the cost of single coverage.

Results

The results of this analysis are shown in Tables 1 and 2. This table has rows for each of the 11 income groups. The columns provide the analysis for the measures described above.

Table 1 shows the share of income, or available resources, devoted to necessities, at the median and 75th percentile. The important distinction between income and resources is immediately apparent from the first few rows; the typical individuals below 150% of poverty, and more than 25% of individuals below 250% of poverty, report spending more than their income on necessities.

As noted above, existing evidence suggests that much of this finding is driven by under or mis-reporting of income. Columns (3) and (4) therefore present results using the available resource measure described above (maximum of income or total consumption minus debt holdings). In these columns, we find that the median family never spends more than 81% of its available resources on necessities, and even the 75th percentile family never spends more than 93% of its available resources on necessities. Above 200% of poverty, even the 75th percentile family spends 82% or less of their available resources on necessities.

Table 2 considers the alternative tabulations of affordability. There are two sets of columns: results are identical below 300% of poverty in both sets, but the first set considers monthly premiums of \$160/month per adult (plus an additional \$160/month if there are children) above 300% of poverty, while the second set considers monthly premiums of \$350/month per adult (plus an additional \$350/month if there are children). Within each set of columns, the first represents affordability defined relative to income, while the second defines affordability relative to available resources. Each case includes the simulated out of pocket costs described above.

Once again, these results are sensitive to the measure of available resources. Compared to income, there is very little affordability for those below 1.5 times income, and only about half of individuals can afford their costs below 2.5 times income. More than 70% can afford costs at 2.5 to 3 times income, and three-quarters or more can afford costs above 3 times income.

Compared to the more appropriate measure of available resources, however, affordability is much more complete – for every group at least 86% of households can afford their premiums and out of pocket costs. Below three times poverty, the only group for which affordability is less than 94% is those from 1.5 to 2 times poverty, where it is 85%. Above 3 times poverty, at least 92% of families can afford premiums of \$160/month per adult, and at least 85% can afford premiums of \$300/month per adult.

In other words, the available resources approach shows that individuals have more “room” in their budgets to afford premiums than is indicated by their income. For example, consider those with incomes between 200 and 250% of poverty. Only 56% of individuals in this income range have enough room between their income and their expenditures on necessities to afford the premiums of \$70/adult that are imposed by CCHIP. Yet 97% of individuals have enough room between their total expenditures (minus debt) and their expenditures on necessities to afford those premiums. That is, 97% of the sample is spending more than \$70 on non-necessity items – spending that can be reduced to pay for CCHIP premiums.

Comparison with GBIO Report

The Greater Boston Interfaith Organization (GBIO) recently issued a report which also considered these affordability issues in a manner similar to Table 2. They interviewed a sample of Boston households to gather data on their necessary expenses in order to assess whether premiums were affordable.

In computing affordability for those below 300% of the poverty line, the GBIO added both premiums and the 90th percentile of “expected” out of pocket expenditures for insured individuals, based on the type of calculations discussed above from the MEPS. This differs from my approach in two respects. First, they are using insured individuals, thereby incorporating the extra care that is used through insurance that should not be incorporated. In fairness, this is really my fault, as I provided these numbers to them before I fully appreciated the importance of this point.

Second, they are using the 90th percentile, rather than the median. But using such a high percentile is inappropriate, particularly for commonwealth care enrollees; individuals who have such high medical expenditures can’t afford *not* to have the heavily subsidized insurance provided by CCHIP. For example, uninsured single individuals at the 90th percentile uses a total of \$1200 in medical care; families at the 90th percentile use \$6700 in medical care. Clearly, it is more unaffordable for these individuals to *not* have insurance than to have it at the premium levels charged by CCHIP.

The findings of our respective reports are fairly similar using the income-based measure. Here are the GBIO results for affordability by income group, assuming a \$350 premium for those above 300% of poverty, compared to my results by income group using a \$350 premium:⁴

Comparisons of Affordability from Gruber & GBIO			
Figures are % of Group for which Premiums are “Affordable”			
Assumes \$350/month premium above 300% of Poverty			
Income Group	Gruber – Income	GBIO – Income	Gruber- Resources
100-150% Poverty	0.33	0.45	0.94
150-200%	0.55	0.58	0.85
200-250%	0.53	0.57	0.94
250-300%	0.71	0.57	0.94
300-350%	0.77	0.52	0.85
350-400%	0.77	0.49	0.88
400-450%	0.91	0.76	0.97
450-500%	0.96	0.82	0.96

This comparison tells a fairly different story above and below 250% of poverty. Below 250% of poverty, the results compared to income are very similar; indeed, the GBIO results suggest even higher affordability. But this is exactly the group for which income measurement is most misleading. Using the measure of available resources, affordability is much higher.

Even the income based measures differ significantly above 250% of poverty, however, with my CEX analysis suggesting much more affordability relative to income than does the GBIO analysis. Once again, affordability is even higher relative to available resources in the last column.

The results from the CEX are to be preferred to the GBIO results on two grounds. First, this is a representative survey of the full population rather than a selected sample of individuals polled by the GBIO. Second, the CEX is a survey designed by experts to measure precisely expenditures by individuals, while the GBIO survey was much more informal. Nevertheless, the conclusions from these surveys are not that different, particularly below 2.5 times the poverty line. The more important difference is the fact that income is not really the right measure to use here; the more appropriate available resources measure shows much more affordability.

⁴ These results use premiums only below 3 times poverty for GBIO, and premiums with assumed OOP costs (\$28/month) above 3 times poverty.

II. Enrollment-Based Approach to Affordability

Framework

My second approach to affordability is to define affordability by what individuals show themselves to be willing to pay to purchase health insurance. This can be readily demonstrated by considering employee reactions to the cost of employer-provided health insurance. When employees are offered insurance by their employers, do they buy it? If so, it suggests that the employees view this insurance as affordable.

This approach raises one important question: at what “cutoff” in enrollment decisions is insurance deemed unaffordable? It is important to remember that employees turning down employer insurance may not be doing so because it is unaffordable, but simply because they prefer to spend their money on other goods. This ties back to the earlier discussion: if those other goods are necessities, then we would probably call insurance unaffordable. But if those other goods are non-necessities, then the fact they are turning down the employer offer doesn’t mean it is unaffordable.

If only 10% of eligible employees enrolled in a plan, would that be enough to call the plan affordable? What about 25%? 50%? 75%? There is no clear cut-off, but a natural starting point is to say that so long as the majority of eligible employees at a given income level enroll in employer-provided insurance, it is affordable.

Data Sources

This analysis employs three sources of data. The first is data on individuals that records their enrollment decisions conditional on being offered employer-provided health insurance. This data comes from the Medical Expenditure Panel Survey from 2003. I take the full sample of individuals who are offered employer-provided insurance, and record their ultimate source of insurance enrollment (or whether they are uninsured). This exercise is carried out for each month of the year, and the annual average is used.

These data can help inform the question of whether, on average, employer-insurance is affordable or not for different income groups. But they don’t speak to how changing the cost of employer-provided insurance affects enrollment through affordability considerations.

The second source of data is from the Kaiser/HRET national survey of employers. This survey gathers information from a large nationally-representative sample of employers, including information on the employee contributions towards insurance and the enrollment rates in that insurance. We can therefore assess whether firms with very high employee contributions have much lower enrollment rates, suggesting an affordability problem with these high premium rates.

I supplement this second source with data from the state’s own survey of employers in Massachusetts; this survey is carried out by UMass and sponsored by the

Department of Health Care Finance and Policy. Besides having a local focus, this survey also has the advantage that it collects much more detail on the distribution of earnings within the firm, allowing me to focus in particular on low wage firms. But the sample size is much smaller, limiting my ability to do some of the detailed analysis that is possible with the Kaiser/HRET data.

Results on Individual Enrollment from MEPS

The results of the MEPS analysis are presented in **Table 3**. As noted, the analysis is restricted to individuals who are offered insurance by their employers. The first column shows various income groups, while the next columns show, for each income group, the share of those offered who:

- Enroll in the employer-sponsored insurance plan
- Enroll in their spouse's employer-sponsored insurance plan
- Get insurance from another source (public insurance or non-group insurance)
- Are uninsured

The first row shows the results for all individuals offered employer-sponsored insurance. Among this full population, roughly 84% take the employer offer, 7% take insurance through a spouse, 1.5% get insurance through other sources, and 7.5% are uninsured.

The next rows show these results broken out by income. The second row shows the results for those below the poverty line. Even in this extremely low income group, if individuals are offered employer-provided insurance, they enroll 62% of the time. The enrollment rate grows to almost 80% between 100 and 200% of the poverty line, and over 85% between 200% and 300% of poverty line. Over three times the poverty line, overall, there is a 89% enrollment rate; this rate does not vary much across the sub-groups above 300% of poverty.

It is clear from this analysis that low income individuals who are offered employer-provided insurance can clearly afford that insurance on average. Particularly for those above the poverty line, the vast majority can afford insurance, and above two times the poverty line individuals are basically at the average enrollment rate, suggesting very little affordability issues. In the Kaiser/HRET data described above, the typical individual employee contribution in 2003 was \$60/month, and the typical family employee contribution was \$250/month. Thus, these findings imply that even very low income families can readily afford \$60/month per adult.

Results on Average Enrollment

The second source of data is the Kaiser/HRET surveys for 2005-2006; by pooling the two years of this large nationally-representative survey, one obtains a sample of more than 3750 firms offering health insurance.

I can use these data to compare the average enrollment rate in insurance in a firm to the premiums charged employees. Unfortunately, we don't know separately about enrollment rates by single/family, so overall enrollment is separately compared to measures of single and family premiums. It is not clear which is the better indicator of price (enrollment by single/family is about 50-50 in these data), but the pattern across both is fairly similar.

The results are shown in Table 4. Employee contributions are divided into eleven categories. For monthly single employee contributions, those categories are: 0; \$1-\$25; \$26-\$50; \$50-\$75; \$75-\$100; \$100-\$125; \$125-\$150; \$150-\$200; \$200-250; \$250-\$325; and more than \$325. For monthly family contributions, these values are tripled.

Table 4 presents average enrollment rates by contribution category; the overall average enrollment rate in the sample, 83%, is almost identical to that from the MEPS individual survey. Interestingly, even when insurance is free (the second row of the table), only about 90% of eligible individuals enroll in the employer plan. This indicates that we cannot take lack of *enrollment* as a perfect indicator of lack of *affordability*: clearly, even when affordable, some individuals either prefer to get their insurance elsewhere or just don't choose to sign up for other reasons.

Moving down Table 4, the results suggest that enrollment rates in employer-provided insurance are responsive to price, but that even at very high prices considerably more than half of employees enroll. That is, even when individuals are charged more than \$325 per month for insurance, or families are charged more than \$975 per month, over 60% of eligible employees enroll. Enrollment is less price sensitive to family premiums, which makes sense since individuals can always drop to single coverage if the family premium gets very high.

It is important to remember that a finding of 60% enrollment at the highest premium levels does not mean that the other 40% of employees find premiums unaffordable. Even when insurance was free, only 90% enrolled. And, as the MEPS data showed, among employees who don't take up employer-provided insurance, only about half are uninsured. So the 60% is a very lower bound on affordability. In other words, even at premiums of more than \$300/month for an individual, two-thirds as many workers enrolled as did when insurance was free.

It is worth noting that this finding is completely consistent with all available empirical evidence on this topic. As reviewed in my research paper with Ebonya Washington, a growing number of studies find that employees are not very sensitive to contribution levels in their enrollment decisions. In that particular paper, we find that large tax subsidies to federal employees (of \$1000 or more in many cases) had almost no effect on enrollment decisions; insurance was affordable regardless of the subsidy level.

Unfortunately, in the Kaiser survey there is no information on enrollment rates by employee income level. But the survey does contain a variable recording whether more than 35% of the workforce earns less than \$20,000 per year. **Table 5** shows the pattern

of enrollment by employee contribution level for this “low income firm” subset. Since this is just a subset of firms, I was only able to use a broader set of categories that ends at more than \$200/month for a single, or more than \$600/month for a family. Enrollment rates overall are lower for this group; even when employee contributions are zero, enrollment rates are only 80-84%. This may reflect higher availability of other insurance options for this group, such as public insurance.

But enrollment in this group is no more price sensitive, at least over the range we observe, than is enrollment in the full set of firms; even at premiums of more than \$200/month for an individual, almost 60% of employees enroll in insurance. Once again, this is a very lower bound on affordability; even when insurance is free, only 80-84% enroll. That is, even among low wage firms, enrollment is about three-quarters as high when premiums are more than \$200/month as it is when they are free. This suggests that at least three-quarters of workers in these low wage firms found insurance affordable.

To focus more on low wage workers, I can turn to Massachusetts’ own survey of employers, which has more detailed information on earnings but at the cost of smaller sample size. This survey asks detailed questions about the share of workers earning:

- Minimum wage (roughly \$10,000 per year)
- Minimum wage to \$10/hour (\$10,000 to \$20,000 per year)
- \$10 to \$15/hour (\$20,000 to \$30,000 per year)
- \$15 to \$20/hour (\$30,000 to \$40,000 per year)
- \$20 to \$25/hour (\$40,000 to \$50,000 per year)
- \$25 to \$30/hour (\$50,000 to \$60,000 per year)
- \$30/hour or more (\$60,000 or more per year)

These data confirm the main lessons drawn in this section: even for low wage firms, enrollment is very high. In particular I have drawn a sample of firms where 90% of the workers are in the first three wage categories – that is, only 10% of workers earn more than \$30,000 per year. The typical firm in this category charges individuals \$100/month for insurance. Yet on average *two-thirds* of employees in these firms sign up for health insurance; this is only slightly below the enrollment rate of all employees in all firms in the state (75%).

Even more striking, enrollment is substantial even at high premium levels. **Table 6** shows the results for this subset of low wage firms in MA; since samples are small, I use only bins for free insurance, employee contributions between \$1 and \$100 for singles (\$1 and \$300 for families), contributions \$100 to \$200 single / \$300 to \$600 family, and contributions more than \$200 single and more than \$600 family. When there are no employee contributions, enrollment is 75-82%. But even at employee contributions of more than \$200 per month for an individual, or more than \$600 per month for a family, enrollment is 50-68%. The results are somewhat noisy here due to the smaller sample size, but the lesson is clear: health insurance is affordable for the majority of workers even at high premiums in very low wage firms

III. Implications for CCHIP & Connector Affordability

These results have important implications for the debate over affordability. It is useful to consider this debate separately for two groups.

Low-Income Families: Low-income families are heavily subsidized under Commonwealth care, but their costs can rise to \$106 for an individual, or as high as \$296 for a family at 250 to 300% of poverty with three or more children. Many are concerned that these premiums are not affordable. This analysis suggests otherwise, on three counts.

- First, low income individuals have considerable resources remaining after paying for necessities to pay for their CCHIP premiums. It is true that for the lowest income groups income is low relative to necessities, but available resources are much larger than necessities, so that resources are available to finance these modest premiums.
- Second, even the lowest income individuals enroll in employer insurance when it is offered, at costs (\$60/month for singles and \$250/month for families) that exceed, on average, what is paid by those below 200% of poverty through CCHIP.
- Finally, the majority of workers continue to enroll in employer-provided insurance even when it gets very expensive, not just overall but also in firms with a concentration of low income workers. Even when the lowest income firms offer insurance at a premium of \$200 or more for individuals, enrollment is three-quarters as high as for those facing no premiums.

Higher-Income Families: Another major concern is those families between 300% and 400% of the poverty line (or even somewhat higher) who face the full cost of health insurance premiums with no subsidies. Once again, however, this analysis suggests that concerns over affordability are unwarranted, on two counts:

- The majority of those at 300-400% of poverty have enough resources remaining after paying for necessities to pay the full premiums of minimum creditable coverage
- On average, enrollment in employer-provided insurance is very high even at premium levels higher than those likely under minimum creditable coverage.

Table 1: Share of Income or Resources Devoted to Necessities

	Necessities / Income		Necessities / Resources	
	Median (1)	75 th (2)	Median (3)	75 th (4)
< Pov	1.6	5.8	0.72	0.90
100-150	1.1	1.4	0.81	0.92
150-200	0.90	1.2	0.71	0.90
200-250	0.89	1.0	0.71	0.80
250-300	0.80	0.93	0.70	0.82
300-350	0.69	0.78	0.67	0.75
350-400	0.72	0.79	0.70	0.75
400-450	0.68	0.76	0.63	0.71
450-500	0.67	0.72	0.65	0.69
500 +	0.59	0.65	0.57	0.63

Notes: Each cell shows the ratio of necessity expenditures to either income (columns (1) and (3)) or resources (columns (2) and (4)). Columns (1) and (3) show median of the ratio; columns (2) and (4) show 75th percentile.

Table 2: Share of Group for which Health Costs are “Affordable”

	Premiums Above 300%: \$160/month		Premiums Above 300%: \$350/month	
	Income (1)	Resources (2)	Income (3)	Resources (4)
< Pov	0.14	0.97	0.14	0.97
100-150	0.33	0.94	0.33	0.94
150-200	0.55	0.85	0.55	0.85
200-250	0.56	0.97	0.56	0.97
250-300	0.71	0.94	0.71	0.94
300-350	0.85	0.92	0.77	0.85
350-400	0.88	0.94	0.76	0.88
400-450	0.97	0.97	0.91	0.97
450-500	1	1	0.96	0.96
500 +	1	1	0.99	1

Notes: Each cell shows the proportion of the income group for which health care expenditures are affordable (for which health care plus necessities add up to less than resources). In columns (1) and (3), resources are defined as income; in columns (2) and (4), they are defined as the maximum of income or consumption expenditures.

Table 3: Insurance Coverage Among Those with Employer Insurance Offer

Income group	Holder (1)	Spouse (2)	Public/NG (3)	Uninsured (4)
ALL	84.40	6.69	1.52	7.39
UNDER 100% FPL	61.99	9.86	3.27	24.88
100-200% FPL	79.53	5.72	1.77	12.99
200-300% FPL	85.83	6.10	1.60	6.47
OVER 300% FPL	88.89	6.82	1.15	3.15
300-350% FPL	89.57	5.52	1.28	3.63
350-400% FPL	85.39	8.69	0.88	5.05
400-450% FPL	87.78	6.81	1.92	3.49
450-500% FPL	88.13	7.63	1.15	3.09
OVER 500% FPL	90.22	6.52	0.98	2.28

Notes: Data from MEPS. Table shows the source of insurance coverage for those offered employer-provided insurance, by income group, and for all income groups combined in the first row.

Table 4: Employer Insurance Enrollment Rates by Contribution Level				
Single Premium	Enrollment		Family Premium	Enrollment
ALL	83.2		ALL	83.2
No premium	89.4		No Premium	89.7
\$1 to \$25	86.5		\$1 to \$75	88.5
\$26 to \$50	84.7		\$76 to \$150	87.5
\$51 to \$75	82.2		\$151 to \$225	84.3
\$76 to \$100	79.2		\$226 to \$300	81
\$101 to \$125	77.2		\$300 to \$375	79.8
\$126 to \$150	71.9		\$375 to \$450	80.6
\$151 to \$200	65.8		\$450 to \$600	80
\$201 to \$250	64.9		\$601 to \$750	77.4
\$251 to \$325	61.7		\$751 to \$975	77.1
More than \$325	60.7		More than \$975	65.4

Notes: Data from Kaiser/HRET survey of employers. Table shows enrollment rates in employer-provided insurance for the premium brackets shown in first (single) and third (family) columns.

Table 5: Enrollment Rates by Contribution Level - Low Wage Firms				
Single Premium	Enrollment		Family Premium	Enrollment
ALL	75.9		ALL	75.9
No premium	83.9		No Premium	79.3
\$1 to \$25	77.4		\$1 to \$75	74.4
\$26 to \$50	79.6		\$76 to \$150	82.1
\$51 to \$75	76.3		\$151 to \$225	78.7
\$76 to \$100	71.9		\$226 to \$300	73.3
\$101 to \$125	66.9		\$300 to \$375	74.7
\$126 to \$150	65		\$375 to \$450	77.2
\$151 to \$200	59.3		\$450 to \$600	79.1
More than \$200	65.8		More than \$600	62.1

Notes: Data from Kaiser/HRET survey of employers. Table shows enrollment rates in employer-provided insurance for the premium brackets shown in first (single) and third (family) columns. Sample in this table is restricted to firms where 35% of employees or more earn less than \$20,000 per year.

Table 6: Enrollment Rates by Contribution Level – Very Low Wage Firms in MA				
Single Premium	Enrollment		Family Premium	Enrollment
ALL	64.3%		ALL	63.1%
No premium	74.7		No Premium	81.2
\$1 to \$100	67.0		\$1 to \$300	62.5
\$100 to \$200	60.5		\$300 to \$600	45.7
More than \$200	50		More than \$600	68

Notes: Data from DHCFP survey of employers. Table shows enrollment rates in employer-provided insurance for the premium brackets shown in first (single) and third (family) columns. Sample in this table is restricted to firms where 90% of employees or more earn less than \$30,000 per year.