RESEARCH REPORT

Review of Budgetary Policies and Practices in the Massachusetts Subsidized Child Care System

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ABOUT THE PROJECT

This report is one of several products prepared as part of the assessment of the Massachusetts state subsidized child care system, which is being conducted by the Urban Institute and it subcontractors Koné Consulting and Wellesley College, under contract to the Massachusetts Department of Early Care and Education (EEC), pursuant to item 1599-0500 of Chapter 38 of the Acts of 2013.

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The views expressed are those of the authors and should not be attributed to the Urban Institute, its trustees, or the Massachusetts Department of Early Care and Education.

Executive Summary

This report, undertaken as one component of a legislatively mandated assessment of the Massachusetts subsidized child care system, summarizes the findings from a review of budgetary policies and practices in the Department of Early Education and Care (EEC) as of spring 2014. This review's goal is to help EEC more efficiently use annual appropriations from the caseload accounts that fund child care services.

This report synthesizes information from interviews with EEC staff, external stakeholders, and experts in other states; it also combines this information with an analysis of recent spending and a review of current forecasting models. It focuses on the three largest EEC caseload accounts: Supportive Child Care (3000-3050), which provides child care services for children referred by the Department of Children and Families; DTA Related Child Care (3000-4050), which provides child care services for children referred by the Department of Transitional Assistance; and Income Eligible (IE) Child Care (3000-4060), which provides child care subsidies for children from eligible low-income and at-risk families.

For each of these accounts, there are several forecasting tasks. First, budget staff must project costs and caseloads for the future year as part of the governor's budget request; this projection also supports the appropriations process in the House and Senate. Also, monthly, EEC budget staff develop updated spending forecasts for the current year based on expenditures to date. Both sets of forecasting tasks are supported by spreadsheet models that project monthly caseloads and costs, drawing on recent caseload and cost data for four age groups (infants, toddlers, preschool children, and school-age children).

The report identifies factors that increase the complexity of forecasting child care caseloads. Many of these are common to other budget forecasts in government agencies:

- Forecasting is inherently uncertain because the future is unknown.
- Estimates are prepared in an environment where underestimating costs (and risking deficits) carries a heavier penalty than overestimating costs (and risking surpluses). Yet errors in either direction are problematic.
- Funds for income-eligible child care are not sufficient to fund all families seeking care.
- The underlying data informing the models are imperfect.

In addition, the particular structures and policies in Massachusetts add further complexity:

- Two of the accounts provide immediate access to families who apply; the third account (IE) provides services to the extent funds are available.
- Rules allowing for limited transfers between the different caseload accounts reduce the need to ask for supplemental funding, yet increase the complexity of forecasting and managing budget spending.

The report also analyzes five years of funding history provided by EEC staff and presents figures summarizing patterns in initial appropriations, midyear adjustments, final expenditures, and final balances. Though there were many transfers between accounts, actual supplemental appropriations and surpluses were smaller than we expected, given the amount of attention paid to them in stakeholder conversations.

The concluding section offers six suggestions for EEC to consider as it continues to improve its management of spending on subsidized child care. Four of these address the forecasting model and could be implemented by the EEC budget staff, the fifth involves the EEC agency as a whole, and the sixth would require action by the legislature.

1. **Keep the models simple.** Adding external factors, such as unemployment rates or demographic trends, is unlikely to be beneficial. Forecasting one caseload per program, rather than four age-specific caseloads per program, may improve the forecasts.
2. **Redesign the forecasting models to put less reliance on most recent month** and more reliance on data over several months.
3. **Put greater relative emphasis on estimating policy shifts** rather than maintenance costs, and consider explicitly modeling time delays when estimating the effects of new policies.
4. **Continue to improve the quality of data used for modeling.**
5. **Consider the benefit of viewing some forecasting issues from the broader perspective of caseload management and service delivery.** Differences between forecasts and actual practice (e.g., underutilization of contracted slots and time lags for caseloads to increase after access to vouchers is opened) can focus attention on the need to improve the forecast model, but they also can flag areas for improvement in caseload management and service delivery.
6. **Consider changing the structure of budgetary accounts** to find a way of dealing with the inevitable differences between projected and actual spending without requiring the IE account to be as large of a buffer for the other two accounts. It may be useful to consider the pros and cons of (1) managing the two entitlement accounts as one funding stream and reducing transfers between the IE account and the other two accounts, except in unusual circumstances

or (2) authorizing the IE account to routinely carry up to 3 percent of funds from one year to the next through a Prior Appropriations Continued (PAC) account.

Review of Budgetary Policies and Practices

Introduction

In fall 2013, the Department of Early Education and Care (EEC) awarded a contract to the Urban Institute and its subcontractors, Koné Consulting and Wellesley College, to conduct an assessment of the Massachusetts subsidized child care system, with the final report due March 1, 2015. This report summarizes the findings from a review of EEC budgetary policies and practices as of spring 2014, undertaken as one component of the legislatively mandated study. The goal of this review is to help EEC more efficiently use annual appropriations from the caseload accounts that fund child care services.

At the kickoff meeting for the full project, held on December 12, 2013, Urban Institute researchers met with EEC Commissioner Tom Weber, Chief Financial Officer Bill Concannon, and other members of the EEC leadership and learned that the largest budgetary concern within EEC was the issue of forecasting caseloads and spending in the caseload accounts in order to spend the annual appropriations without surpluses or deficits. Similarly, concerns about surpluses and deficits in the caseload accounts were raised several times during interviews conducted with a dozen stakeholders outside EEC during an initial planning phase, including members of the EEC Board, the House and Senate Ways and Means Committees, and staff from the Executive Office of Administration and Finance (ANF). At the end of the planning phase, the scope of the budgetary review was refined to focus on the interrelated issues of

1. data and models used to forecast spending from each of the caseload accounts, and
2. the structure and rules governing spending out of the budget line-items.

To better understand these two key areas, we developed a multi-tiered approach. First, as mentioned above, we synthesized our notes from the initial meetings with EEC and stakeholder interviews to assess the issues at hand; we also identified experts to speak with and important data to request and analyze.

Second, the Urban Institute budget review team (Julia Isaacs and Michael Katz) met via telephone with EEC budget staff, including director Sean Reynolds, assistant budget director Andrea Gilmore, and

caseload budget manager Carole Meehan. These meetings focused on the history of the funding structure and levels, caseload projections and management, and spending patterns. EEC budget staff also shared projection spreadsheets and historical data on caseload numbers, funding, and spending and walked us through the projection spreadsheets for the three accounts, explaining how the formulas are developed and used. In addition, the Urban Institute team analyzed the projection spreadsheets to find potential ways to modify and improve caseload projection models.

Third, we conducted semi-structured interviews with budget experts outside of EEC. We spoke with a dozen experts including ANF budget analysts, members of the Caseload Forecasting Advisory Board, budget analysts from a non–child care agency in Massachusetts (the Department of Housing and Community Development), staff at the National Association for State Budget Officers, and former Child Care and Development Fund (CCDF) administrators and budget experts from two other states (Washington and Wisconsin), between March and May 2014. These conversations focused on broad issues related to budgeting cycles, surpluses and deficits, and projecting and managing caseloads. In addition to consulting with experts in budget forecasting, we drew on our own experience in forecasting, including the 10 years that Julia Isaacs spent developing budget projections at the Congressional Budget Office and seven years in reviewing projections at the Department of Health and Human Services. An interim report was submitted to EEC in June 2014.

This report synthesizes qualitative information from the interviews with an analysis of recent spending and the budgetary models used in spring 2014. The first section provides an overview of the different EEC caseload accounts that fund child care subsidies in Massachusetts. The second section describes the forecasting tasks and challenges associated with these caseload accounts. Further context is provided through an analysis of spending trends, including surpluses and balances, in each of the three accounts over the past five years. Finally, the report concludes with options for improving the forecasting and budgeting process.

Overview of EEC Caseload Accounts

EEC administers three primary subsidy programs, each serving a different population of children and funded from a separate line-item of the budget. Funds can be transferred between accounts to some extent, with advance notice and approval by the legislature. Any funds that are not spent by June 30 of the state fiscal year revert back to the general fund, unless the legislature provides a carry-over through a Prior Appropriation Continued (PAC). These accounts are as follows:

- **Supportive Child Care (3000-3050),** which provides child care services for children referred by the Massachusetts Department of Children and Families (DCF). This account provides immediate access to all eligible families. Nearly all children are served through contracted services. Funds can be transferred into this account from the other two accounts, but cannot be transferred out unless the legislature grants permission.

  Supportive Child Care is the smallest of the three accounts (see figure 1). The General Appropriations Act provided $77.3 million in 2013 and a total of $73.8 million was expended over the course of the year, leaving a balance of $3.6 million.

- **DTA Related Child Care (3000-4050),** which provides child care services for children referred by the Department of Transitional Assistance (DTA), including families receiving assistance under the Temporary Assistance for Needy Families program and families recently exiting the cash assistance system. This account provides immediate access to all eligible families through vouchers. Funds can be transferred into this account from the Income Eligible account. In addition, up to 3 percent of the appropriation can be transferred out of the DTA account to the other accounts.

  In 2013, its appropriation was $125.5 million and its expenditures were $131.7 million. Transfers of $6.7 million from the Income Eligible account allowed expenditures to exceed the original appropriation, and the account ended the year with a positive balance of $0.5 million.

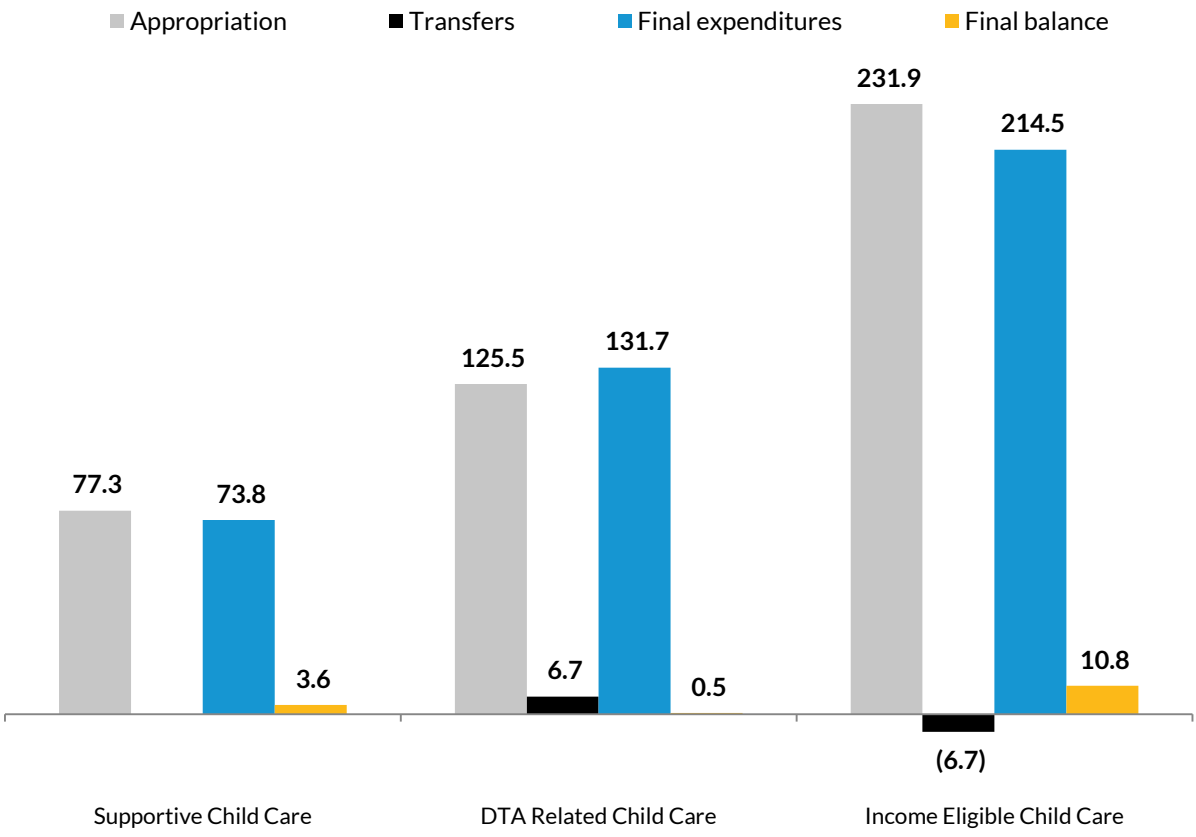
- **Income Eligible (IE) Child Care (3000-4060),** which provides child care subsidies for children from eligible low-income and at-risk families. This account is more directly under the control of EEC than the others because, with the exception of homeless families, families are not referred from other agencies; rather, they apply directly to the local entities authorized by EEC to provide vouchers and contracted slots, namely, Child Care Resource and Referral (CCR&R) agencies and contracted providers. Not all eligible families are served; those who are not served are placed on a waiting list. Access to IE vouchers has been completely closed for months at a time in recent years, leading to a large waiting list. Funds are expected to be transferred out of this account to meet the needs of eligible families in the other two accounts if those other accounts have higher caseloads or costs than projected (because the other two accounts do not turn away eligible families who are referred by DCF or DTA). Funds also can be transferred into this account from the DTA account if that account has lower caseloads or costs than projected.

The appropriated level for the IE account was $231.9 million in 2013. Of this, $6.7 million was transferred to cover a deficiency in the DTA account, and final expenditures were $214.5 million. The final balance was $10.6 million, of which $8.5 million was carried into the next year as a Prior Appropriation Continued (PAC), and $2.3 million was reverted.

A fourth account, **Waitlist Remediation (3000-4070),** was added in 2014, providing $15 million for reducing the waitlist for the IE account through IE vouchers.

FIGURE 1

Appropriations, Transfers, Expenditures and Balances for Caseload Accounts, 2013 (Millions of Dollars)



Source: Urban Institute analysis of data provided by EEC.

Forecasting Tasks and Challenges

Overview

EEC budget staff face several forecasting tasks associated with the caseload accounts. First, budget staff must project costs and caseloads for the future year. Generally, staff work in September or October of each year to develop estimates of what it would cost to continue current caseloads for the following state fiscal year (July to June). This maintenance budget is submitted to ANF and contributes to development of the governor's budget. In late January, the governor submits his proposed budget, which may incorporate additional policy changes that increase or reduce spending relative to maintenance levels. The House and Senate Committees on Ways and Means each review the budget and develop their own recommendations (first the House, then the Senate, then a conference of the two), and the final General Appropriations Act is passed and signed by the governor. During this multi-month process, ANF or legislative staff often ask EEC budget staff for updates to the projections prepared in the fall.

Another set of tasks concerns forecasting spending for the current year based on expenditures to date. Early in the fiscal year (August through October), EEC staff develop a spending plan to project caseload and need for the current year. Each subsequent month, EEC budget staff prepare updated projections for the current fiscal year based on observed spending during the previous months. In general, they project the amount of deficit or surplus that will be in the account on June 30 using preliminary data for the most recent month. The updated projections are shared during monthly meetings with the Fiscal Committee[1] of the EEC Board and monthly caseload update meetings with ANF staff. State legislative staff frequently attend the meetings with ANF.

Each of the three primary accounts is modeled in a separate worksheet-based model; the new waitlist remediation account is a special page within the IE model. For each account, EEC budget staff review recent trends in monthly caseloads (e.g., the number of children receiving services each month), by age and monthly costs per child (also sorted by age). Similar to most budget forecasts, the models project future trends based on the experience of the past two or three years; however, if there are spikes that seem to be anomalies, the growth rates may be based on just 1 or 2 years' experience. Though caseloads and costs are tracked for both vouchers and contracts, spending for contracts is allocated under the assumption that 100 percent of the contracts are spent. In recent years, this approach has become problematic because of contract underutilization. Currently, budget staff start

the year assuming maximum obligation; as the year progresses, they make adjustments based on observed utilization rates. With this exception, the same general approach is used when projecting costs into a future year or tracking costs in the current year.

EEC budget staff sit on the Caseload Forecasting Advisory Board established by ANF to examine caseload forecasts across several agencies. However, the advisory board's primary task is to forecast health spending, which is much greater than spending for child care subsidies and has larger differences between forecasts and expenditures.

Forecasting Challenges

In conversations with EEC budget staff and stakeholders, and through our own analysis of the models and recent spending trends, we identified many factors that increase the complexity of forecasting child care caseloads. Many of these are common to other budget forecasts:

- **Forecasting is inherently uncertain because the future is unknown.** Though last year's caseload and costs can be a good starting point for projecting next year's caseload and costs, several factors could drive changes (such as changes in the number and ages of children [caused by underlying fertility trends, immigration, and the aging of the population], changes in demand for child care [caused by changes in the state of the economy and policies in DTA or DCF], and changes in costs for child care [caused by market changes or changes in EEC rates or policies]).
- **Estimates are prepared in an environment where underestimating costs (and risking deficits) carries a heavier penalty than overestimating costs (and risking surpluses). Yet errors in either direction are problematic.** Any budget analyst preparing forecasts know that there is a considerable margin of error around the estimates. For sake of simplicity, assume an analyst's best estimate is that a program will cost $100 million, but it is equally likely it will cost $95 million, $100 million or $105 million. Though the best estimate might be midpoint ($100 million), budget staff (not just at EEC, but at all federal and state agencies) may feel it is fiscally prudent to estimate $105 million to avoid underestimating costs and requiring their agency head to approach ANF (or the Office of Management and Budget if working at the federal level), and the governor (or president) to ask the legislature for a supplemental appropriation to avoid running a deficit. In a real-world example, a child care budget analyst in another state said that he had assumed expenditures would grow 1 percent in the coming year, despite a recent history of flat growth, because allowing a small cushion seemed fiscally prudent.

There are downsides, however, to overestimating costs and returning unused funds at the end of the year. Returning unused funds reduces the agency's ability to accomplish its mission, raises the risk that the legislature or chief executive will reduce funding the next year, and is likely to anger child care providers and advocates. In other words, EEC budget staff feel pressure from both sides. They are trying to walk the thin line between overestimating and underestimating caseloads and costs in each account. One respondent explained the challenge of budget analysts at EEC and other agencies: "You want to come in on fumes, you can *not* come in in the red, and so it's statutory responsibility of board and commissioner to manage the budget and so there will always be slight surplus."

- **Funds for income-eligible child care are not sufficient to fund all families seeking care.** Though some states provide ample child care funds to serve all who apply, many states are in a position similar to Massachusetts's, where the number of families seeking vouchers or contracted slots for subsidized child care under the IE account is too great to provide all of them funding. Long waiting lists add pressure to the budget forecasting: any funds reverted at the end of the year is viewed more negatively given in light of the families waiting and denied services.

- **The data are imperfect.** Both EEC budget staff and external stakeholders noted that the task of monitoring current projections is complicated by the fact that data for recent months may change over time as late billings are received or other changes are made to the underlying data feeding into the model. The software used to track caseloads and payments is generally viewed as insufficient, and plans are in place to upgrade to a new Child Care Financial Assistance system, which is expected to lead to some improvements in data quality.

  In addition, there is insufficient information on the underlying pool of eligible families. Of particular concern in Massachusetts is uncertainty about the number of children involved with DCF (through child abuse and neglect or foster care services) who might be potentially eligible for Supportive Child Care services. As the December 2013 Report by the Special Commission on Early Education and Care Operations and Finance notes, there were "5,554 Supportive early education and care slots available and approximately 97% are filled… [but] …DCF has approximately 22,000 active cases involving children. Many of these children would benefit from early education and care services, if program capacity would allow for it" (Special Commission on Early Education and Care Operations and Finance 2013). Yet there are no good data on how many of these families would use child care services if more referrals were made. The waiting list data for families waiting for IE vouchers also were singled out as being of

such poor quality (e.g., with dated information) that they could not be used to anticipate caseload growth.

Imperfect data are a challenge for all forecasting models. Yet those we interviewed felt the data available to EEC had particular weaknesses. In addition, there are factors specific to Massachusetts that also increase the forecasting challenges:

- **Two of the accounts (Supportive Child Care and DTA Child Care) provide immediate access to families who apply; the third account (IE) provides services to the extent funds are available.**

  Both types of accounts have distinct budgeting and forecasting challenges, and managing budgets across these two types of accounts (as occurs because of transfers between accounts) adds complexity to EEC's budgeting tasks.

  » Forecasting an account that provides immediate access (often referred to as an entitlement account) can be nerve-racking because if budget forecasts are too low, an agency has to turn to the governor (and then to the legislature) for supplemental funding (because closing access is not an option). However, the dynamic of asking for a supplemental appropriation is different for an entitlement account, such as foster care or Medicaid, than for a discretionary account, particularly if the factors that lead to caseload growth are factors that could not reasonably be anticipated in budget forecasts.
  » Managing caseloads in an account that has a fixed amount of funds presents different challenges. In this case, the agency must use available policy levers (such as opening or closing access) to manage the caseload from a service-delivery perspective and adjust to higher or lower budgets as provided by the legislature.

  An observer outside EEC noted that because EEC is managing both entitlement accounts and the IE account, the budgeting and forecasting task is more challenging than for agencies managing such accounts separately.

- **Transfer rules between the different caseload accounts reduce the need to ask for supplemental funding, yet increase the complexity of forecasting and managing budget spending.** EEC budget staff noted that the flexibility of transfers allowed them to address deficits in the two smaller entitlement accounts without asking for supplemental appropriations. However, it also increased the challenge of managing the larger IE account, which was frequently the source of transfers. In managing the IE account, agency staff must always "have in back of our minds the

> supportive and DTA accounts… we can't work at IE just in itself. The assumption is that if there is a deficiency in DTA, part of the surplus in IE will have to go towards fixing that hole."
>
> Several stakeholders questioned whether the transfers across accounts were efficient. One respondent questioned whether "it is the best way to do it, people would say [we] shouldn't be robbing Peter to pay Paul." Another noted that the transfers led to more conservative spending in the IE account. That is, the respondent said the agency might "delay decision making" on whether to open access when there is an apparent surplus in the IE account, "because we don't know where DCF or DTA are going."

A final complication noted in several interviews is the complexity of managing spending from the current year appropriation in a way that does not have negative consequences for the subsequent year, given that families brought on at the end of one year are likely to remain on through most of the next year. In particular, if midway through one year a surplus develops in the IE account, the agency may be reluctant to spend the surplus and thus cause an influx of children in the final months of the year because caseloads will be elevated in the subsequent year. That higher level of caseload may be hard to sustain with the appropriations (which were provided based on forecasts made several months earlier, before the additional children were added). In other words, the interplay of current and future year spending can contribute to conservative spending in the IE account in the current year.

Finally, we note a potential challenge that we did not find in Massachusetts. In some cases, the technical challenges of forecasting budgets can be compounded by political dynamics when there is distrust and antagonism between the agency budget offices and the executive office that oversees them, or between the executive branch and legislative branch. Interacting with participants, however, we sensed good relationships between EEC and its other budget stakeholders (such as the EEC fiscal board, ANF staff, and legislative staff). Stakeholders appreciated the transparency of the information provided and that Deputy Director Bill Concannon and Budget Director Sean Reynolds were responsive to inquiries.

However, even as those we interviewed appreciated the frequent budget updates, external stakeholders expressed some frustration that the projections changed so dramatically from month to month, even though they also expressed understanding that some of the swings were caused by poor data and the challenge of running caseload accounts during a recession and with tight budgets. EEC stakeholders and budget staff expressed concern about deficits and surpluses, making comments such as "EEC has a history of big surpluses and deficits," and "EEC has a recent history of running a deficit in their accounts and [the legislature] had to provide supplemental funding." In the next section, we review

the actual expenditures and year-end balances over the past five years to better understand the history frequently mentioned in stakeholder interviews.

Funding History for the Three Primary Caseload Accounts

From stakeholder interviews, we understood that the caseload accounts ran a deficit (and thus needed a supplement) in state fiscal year 2011 (July 2010 through June 2011); this was followed by surpluses in 2012 and 2013. To learn more about the magnitude of these deficits and surpluses, and to better understand which accounts were affected and the interactions among the accounts, the research team analyzed five years of funding history provided by EEC staff. Our analysis examines not only initial appropriations but also the adjustments made midyear (e.g., budget cuts, supplemental appropriations, and transfers in or out), final expenditures, and final balances.

In brief, the actual deficits and surpluses were smaller than we expected given the amount of attention given to them in stakeholder conversations. We suspect this is because projected deficits and surpluses are the focus of considerable attention at monthly meetings throughout the year, and the agency sometimes had to take difficult corrective actions (such as closing access to IE vouchers) to stay within appropriated levels. Ultimately, over the past five years and three accounts, though transfers between accounts were common, there was only one occasion of asking for a supplemental appropriation ($10 million in 2011). Surpluses tended to be small to moderate in size and ranged from 0.5 to 4.6 percent of appropriated levels, with the higher levels occurring in 2013.

As shown in figure 2 through figure 4, transfers between accounts were common because spending forecasts based on partial-year data suggested different patterns of expenditures than were initially projected before the fiscal year began. Each of the three accounts was both the donor and recipient of such transfers. In 2010, a transfer exceeded 3 percent of the originating account and needed special approval from the legislature. In 2011, transfers were not sufficient to cover anticipated deficits and the agency asked for and received a $10 million supplemental approval.

Finally, there is some suggestion that the budget projections were less accurate when incorporating policy changes (such as shifting a population group from one account to another, or reopening access after a period of closed access) than when assuming a continuation of the previous policy. Details by account follow.

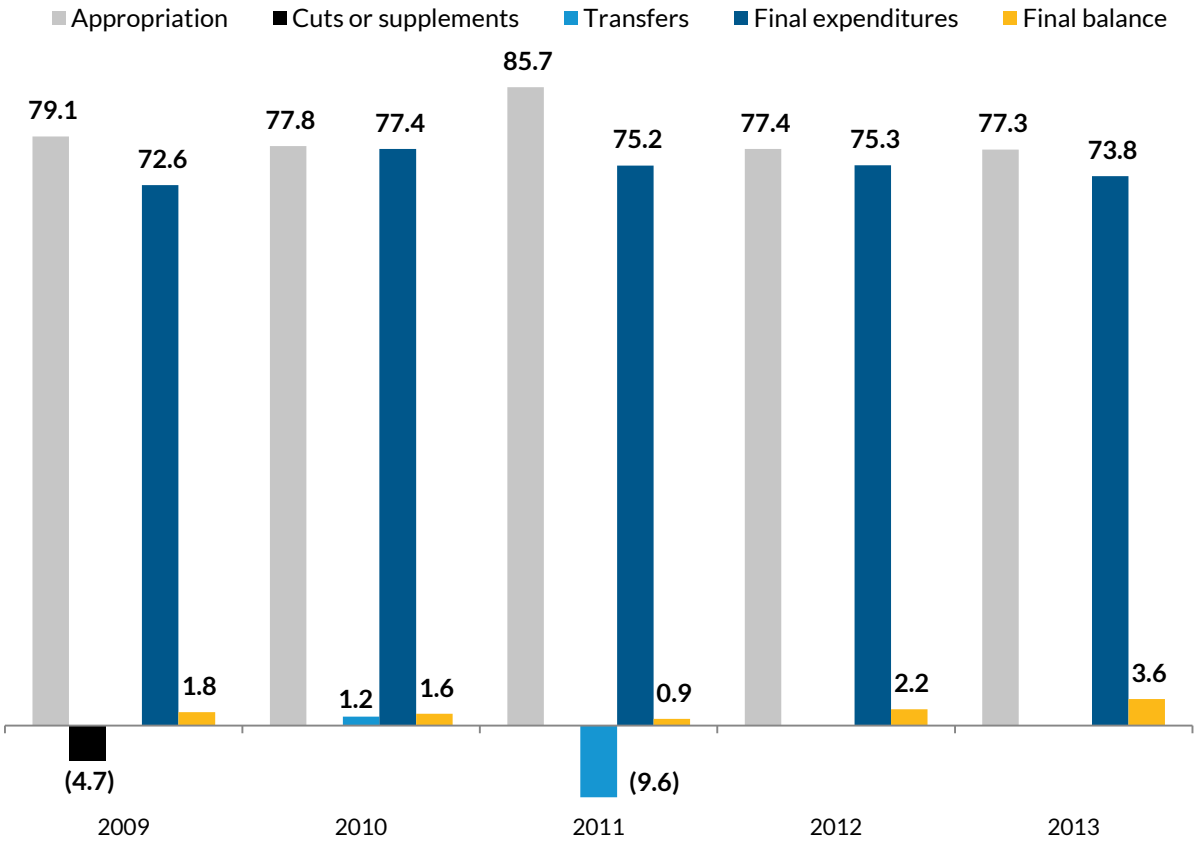
Supportive Child Care

Expenditures for the Supportive Child Care account have been fairly stable over the past five years; year-to-year changes have averaged $2.2 million. The highest change in expenditures was an increase of nearly $5 million between 2009 and 2010; in that year $1.3 million needed to be transferred into the Supportive Child Care account (from the IE account). In 2011, the Supportive Child Care appropriation was increased by nearly $8 million, but expenditures did not continue at the higher levels, leading to excess funds (which were transferred to the IE account). This required legislative language because usually funds cannot be transferred out of the Supportive Child Care account.

In most years, the Supportive Child Care account has had small unspent balances (1.1 to 4.6 percent); the balance of $3.6 million in 2013 or 4.6 percent of the account appropriation is the highest of the past five years (figure 2). Though that description demonstrates that the Supportive Child Care account has been fairly stable and thus may seem easy to project, EEC staff are aware that the pool of DCF families with a potential need for child care services is much larger than the current numbers being referred, so there is always a potential for caseload growth. Several stakeholders noted the uncertainty of an eligible pool of between 5,000 and 22,000 children, and caseload data for the second half of fiscal year 2014 shows several months of caseload growth.

FIGURE 2

Appropriations, Adjustments, Expenditures, and Balances for the Supportive Child Care Account, 2009–13 (Millions of Dollars)



Source: Urban Institute analysis of data provided by EEC.

DTA Related Child Care

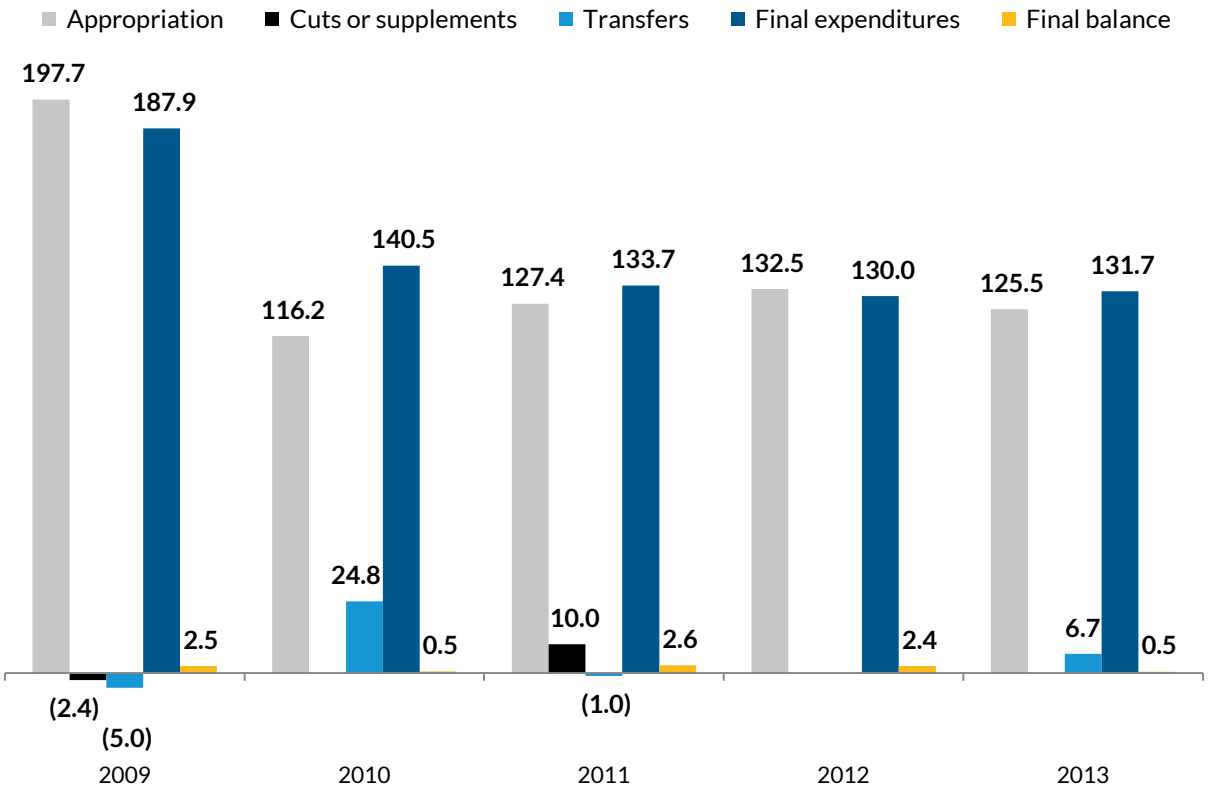
Expenditures for the DTA account have fluctuated more than expenditures for the Supportive Child Care account over the past five years (figure 3). This account provides child care for families receiving assistance through Temporary Assistance for Needy Families and families recently exiting the cash assistance system. In 2010, there was a policy decision to shift "post-transitional" child care services from the DTA account to the IE account (these are vouchers for families who had transitioned off cash assistance more than 12 months ago and thus were no longer eligible for regular transitional child care). DTA account expenditures dropped $47 million; however, this was not as large as the drop in appropriations levels (nearly $82 million). Budget analysts explained that the post-transitional caseload was a smaller proportion of the total DTA account than had been estimated. Consequently, the DTA

account was running a deficit midway through 2010 and nearly $25 million in funds had to be transferred back into DTA account (from the IE account).

In 2011, the DTA account was still affected by the underestimate of its needs after the post-transitional caseload was shifted out. Despite an increase in its appropriation relative to 2010, it did not have sufficient funds, and because the IE account was also running low, EEC had to ask for a $10 million supplemental appropriation from the legislature (most of which went to the DTA account; only $1 million was transferred to the IE account). This $10 million supplemental appropriation is the only supplemental appropriation in the EEC accounts that we are aware of over the past five years. However, the issue of deficits in 2011 came up frequently in conversations within and outside EEC as an illustration of the need for better forecasting models.

FIGURE 3

Appropriations, Adjustments, Expenditures and Balances for the DTA Related Child Care Account, 2009–13 (Millions of Dollars)



Source: Urban Institute analyses of data provided by EEC.

Even without counting the one-time drop in expenditures between 2009 and 2010 (caused by the shift in funding for post-transitional child care), the year-to-year changes in expenditures for the DTA account were larger than for the Supportive Child Care account (the expenditures for the DTA account ranged from $1.6 to $6.8 million and averaged $4 million).

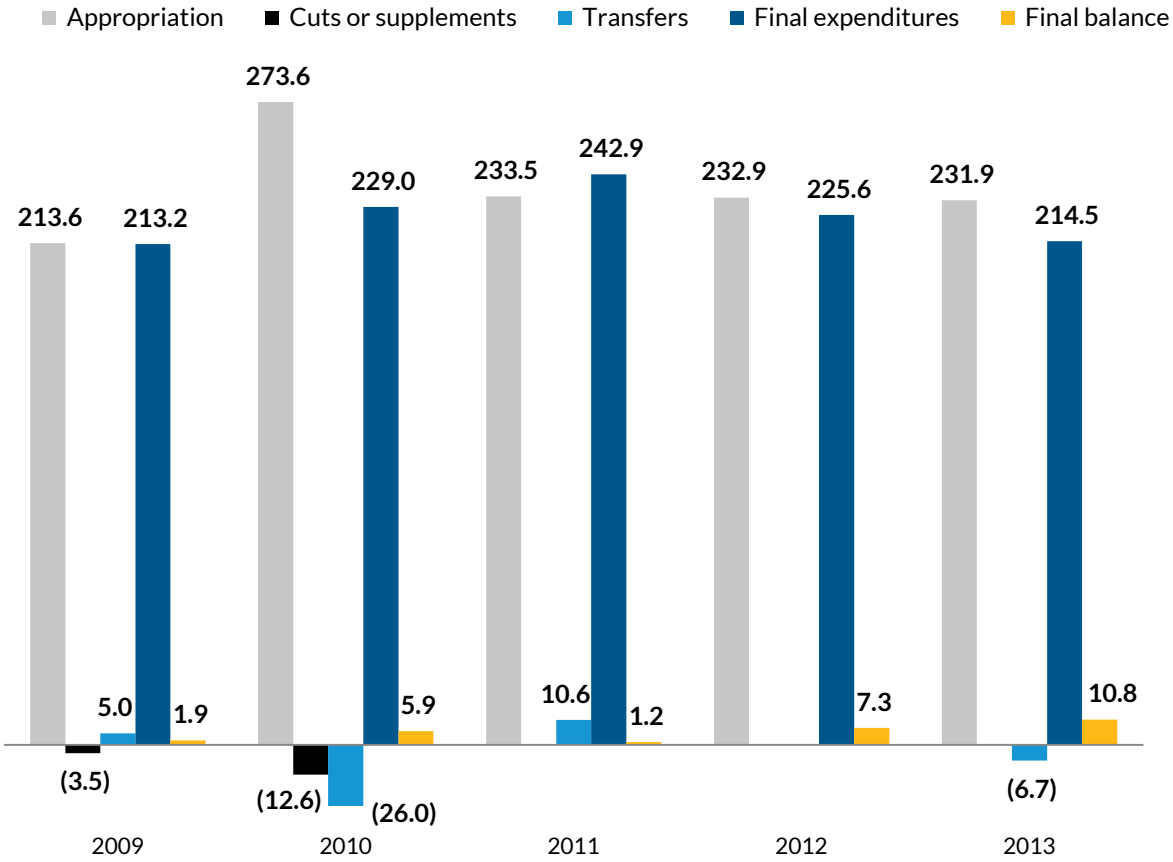
Income Eligible Child Care

Expenditures in the IE account are more difficult to track than in the other accounts because IE account expenditures are affected by more factors, such as the initial appropriation level, program cuts that may occur because of state budget challenges (as occurred during the recession, with cuts in 2009 and 2010), transfers to and from the other caseload accounts, shifts in funding (such as those that occurred when the post-transitional cases were shifted from the DTA account to the IE account), and decisions on whether to open or close access to vouchers (a policy decision driven by available funding levels). For example, expenditures were much higher in 2010 than in 2009, reflecting the shift of post-transitional cases. But the 2010 increase in IE account expenditures was much smaller than the $60 million increase in the IE account appropriation, and many factors contributed to the difference: the governor cut the appropriation, expenditures were constrained by access to vouchers closing during fall 2008, there were not as many post-transitional cases shifted as expected, and expenditures were slow to rise after access was reopened in February 2010. Even with transfers to other funds, there was a balance of $5.7 million in 2010, of which $5 million was carried over into 2011 (figure 4).

Expenditures were higher than appropriations in 2011 (even after adjusting the appropriation upward for the $5 million PAC), and the IE account was the recipient, rather than the donor, of transfers in 2011. Special language was enacted allowing an unusual transfer into the IE account from the Supportive Child Care account. Also, as noted, the DTA account was also running short and received a $10 million supplemental appropriation (of which $9 million went to the DTA account and $1 million went to the IE account). After 2011's deficit, the account was managed more conservatively and there were surpluses in 2012 and 2013, which in the latter year reached $10.6 million (4.6 percent of the appropriation).

FIGURE 4

Appropriations, Adjustments, Expenditures and Balances for the Income Eligible Child Care Account, 2009–13 (Millions of Dollars)



Source: Urban Institute analyses of data provided by EEC.
Note: The 2011 appropriation includes a $5 million Prior Appropriation Continued and a $228.5 million appropriation under the General Appropriations Act. Also note that in both 2010 and 2013, the amount reverted was less than the final balance, because funds were carried into the next year ($5 million between 2010 and 2011, and $8.5 million between 2013 and 2014).

Options for Improving Policies and Practices Related to Forecasting Spending

Here, we offer six suggestions for EEC to consider as it continues to improve its budgeting, forecasting, and management of spending on subsidized child care. The first four pertain to the forecasting model and could be implemented by the EEC budget staff, the fourth one involves the EEC agency as a whole, and the fifth would require action by the legislature.

1. **Keep the models simple.**

   One question raised during the interviews in Massachusetts was whether the forecasting models could be improved by adding external variables, such as statewide economic or demographic factors. Using such a model might seem preferable to simply assuming a continuation of recent caseload trends and cost patterns. However, we do not believe there is a strong enough relationship between child care caseloads and external factors to warrant such model building. (It may be useful to tie child care costs to projections of inflation).

   This belief is supported by the experience of two out-of-state child care budget experts, who both said that they had spent time building such models but abandoned them because they were not useful for making annual or biennial budget projections. One former CCDF administrator told us that that agency staff had spent time building a complex model that incorporated economic indicators, such as unemployment rates, but it did not work very well. The model was maintained for a few years out of "due diligence" but the agency ended up using simpler models based on historical growth patterns for their budget projections. Empirically, there was little correlation between overall unemployment rates in the state and the demand for child care among the subsidy-eligible population. Similarly, a budget analyst told us that as a new graduate out of public policy school, he experimented with many models, but in the end used a simple one: total expenditures multiplied by a 1 percent growth rate. (He was actually from the same state as the former CCDF administrator and was not aware of the model building that had occurred a dozen or so years earlier).[2]

   Rather than expand the models, we suggest that EEC consider simplifying them. In particular, given the uncertainty of caseload projections, it may be better to project one monthly caseload and one average weighted cost rather than the current practice separately projecting four caseload age groups (infants, toddlers, preschool children, and school-age children) for each of 12 months and four sets of average costs for each of the 12 months. The current models thus have many moving parts, making it harder to focus on important modeling assumptions (e.g., whether caseloads are going up or down, by how much are they fluctuating, and whether average costs are rising faster than inflation). Under the simplified models, variations in costs across age groups would be captured in a weighted average cost.[3] Simplifying the models and not breaking them down so much by age groups, if possible, would make it easier to manage the budget projection process and model change in policy, the biggest challenges in budget forecasting.

2. **Redesign the forecasting models to rely less on the most recent month and more on data over several months.**

   The current models rely on monthly caseloads and monthly costs. Each month is based on data from the previous month multiplied by an assumed growth rate (generally based on the pattern of the past two to three years). The advantage of this approach is that it incorporates the seasonal trends and uses the most recent data. However, the disadvantage of this model when tracking current spending is that if preliminary data for one month are lower than average and preliminary data for the next month are higher than average, then the projections of the year-end surplus or deficit may swing from a surplus in one meeting to deficit in the next month's meeting. Such month-to-month swings in the year-end balances are likely to contribute to external stakeholders' perception that the models are unstable and the forecasts are uncertain.

   Of course the forecasts are uncertain, but the degree of uncertainty and the sense of discomfort might be lowered if year-end balances do not fluctuate so largely each month. We believe that there would be less fluctuation if the models were adjusted to not rely on the previous month's data (which is always preliminary and subject to revision). Many different approaches could be taken to accomplish this:

   - Maintaining the current model's structure but projecting caseloads and costs for each month using the cumulative average caseload and costs in that fiscal year. For example, February would not be based on January, but on the average for July through January. Or, it might be simpler to base each month off of a rolling average of the previous three months. In this case, February would be based on November through January.
   - Revising the model's structure to focus less on monthly growth rates and more on assumed annual growth rate (which might be composed of trends under maintenance spending and any additional adjustment for policies). This could be done by basing each month off of spending a year earlier to maintain seasonal patterns. Alternatively, one might consider more fundamental restructuring to focus more on average annual caseloads and costs, then separately estimate monthly (seasonal) fluctuations from the annual average.
   - Developing a time series model where the value of Y (the monthly caseload) is based on the previous month and the caseload 12 months ago. Alternatively, the model could use more lagged months, generally having the form where $Y_t = f(Y_{t-1}, Y_{t-2}, Y_{t-3}, \ldots, Y_{t-12}) + e$ (where t=time and e=an error term). Such a model can be built with the assistance of specialized autoregression functions found in statistical software packages. One option would be to project caseloads in this way (because many families stay on the program for months, thus

the previous month's caseload, combined with seasonal variation, is a good predictor of the next month's caseload) but use a simpler annual average of costs per case.

3. **Put greater relative emphasis on estimating policy shifts rather than maintenance costs, and consider explicitly modeling time delays when estimating the effects of new policies.**

   One conclusion of our review of caseload account expenditures over the past five years was that expenditures were harder to predict (and forecasts had larger errors) during times of policy shifts, such as the shift of post-transitional DTA families out of the DTA account and the opening and closing of access in the IE account. Our recommendation is to simplify the underlying model for maintenance costs and put more relative emphasis on the challenge of estimating the size and timing of policy shifts.

   It is not easy to estimate budget effects of policy shifts. Sometimes it is possible to build these estimates into the projections model (e.g., caseloads will rise by 5 percent, rather than 1 percent, because of a certain policy shift, or costs will increase by 3 percent above inflation because of certain policies). In other cases, it may be preferable to have a baseline model and separately estimate the policy shift, focusing on total annual costs rather than detailed monthly projections. For example, a certain policy is expected to increase costs by $20 million in the first year of implementation (assuming it brings on a certain number of new children who come on over a six-month period and have an average cost similar to current average costs).

   The challenge of estimating the budgetary effect of policy shifts is reflected in a story shared by one of the former CCDF administrators interviewed for this project. A few decades ago, the state had a shortage of funds for their working poor (income-eligible) families and thus closed access and instituted waiting lists to reduce costs. However, costs did not fall as much as projected, because of an unanticipated behavior change among families: After the waiting list was implemented, families already on the program held onto subsidies for longer periods of time, so expenditures did not drop as expected. In other words, the policy shift led to complex and unanticipated changes in family and provider behavior. Similarly, in the same state, when the waiting list ended, it took longer than expected to build the caseloads back up. The CCDF administrator believed this was because the word on the street was that there were waiting lists, and it takes time for news about the availability of more subsidies to trickle out to all the families who might apply for services.

   This same CCDF administrator said over time she came to view CCDF caseloads as "like a Mack truck…if it started declining or started increasing, it took a while to reverse direction." The analogy may fit for Massachusetts; EEC budget staff reported that

there were often lags between the time when access was opened (or closed) and expenditures showed an increase (or decrease). If it is true that expenditures move slowly, it may be difficult to make a midyear correction and rapidly increase or decrease expenditures. That also means, however, that forecasts based on the past year generally provide a decent guidepost for the next year.

Forecasting may also be improved by explicitly modeling time delays. Often budget analysts will provide annualized estimates, explaining that $10 million in additional funding could support thousands of additional children, assuming all children are on for 12 months. However, it takes time to bring on new children. It takes time for (1) ANF to release funds to the agency, (2) the agency to inform the child care resource and referral agencies and contracted providers about the new policies, (3) child care resource and referral agencies to inform families, (4) families to be matched with the appropriate provider, and (5) that provider to bill the agency for services. Even when there is an emphasis on bringing on children rapidly (as occurred in fall 2013 with the release of the $15 million waitlist remediation funds), the many steps of the process take time.

At the Congressional Budget Office, budget analysts typically develop rules of thumb to assume partial-year costs in the first year of implementing certain types of policies, particularly program expansions. One simple rule is that it takes 12 months to fully implement a program expansion, so first-year costs are half of full-year costs. Alternatively, if the agency can move faster and implement a policy fully within six months, one might assume first-year costs are 75 percent of full-year costs (50 percent of the first six months [assuming costs build gradually over the first six months] and full costs for the second six months). Though imperfect, simple rules of thumbs about typical lag times are likely to lead to better forecasts than assuming 100 percent annualization in the first year of a new policy.

4. **Continue to work on quality of data coming in.**

As noted, several internal and external stakeholders pointed to weaknesses in the data informing the forecasting models, such as data from the billings system, data on the waiting lists, and general data on the pool of eligible families for the caseload accounts. Some steps have already been taken to improve data, and additional steps are planned or could be taken.

» **Improve quality and reduce time lags in billings data.** We were told that late billings have come down in recent years, meaning the most recent month's billing now provides a better representation of actual services and is less likely to swing upward when additional bills

come in. (Also, the model has been adjusted to more explicitly track and forecast late billings based on recent experience). The new Child Care Financial Assistance system may further improve the quality of data used as primary inputs to the model. An analyst with the Massachusetts Department of Housing and Community Development emphasized the value of real-time data for tracking spending during the year.

- **Waiting list data.** In conjunction with providing additional vouchers under the waitlist remediation program, steps are being taken to clean up the waiting list. Some families were removed from the waiting list during the fall of 2013 and the waiting list was further cleaned up in summer 2014. In addition, the aforementioned Child Care Financial Assistance system is expected to help with future waitlist issues as there is functionality to more closely track eligibility, family data, attendance, and billing across the different actors who play a role in the subsidy administration and management process.
- **Eligible children and families.** Though more information about the underlying pool of eligible families may not be needed for short-run (annual) projections, such information could help with long-term planning and provide a better sense of what percentage of the potentially eligible pool are covered by current services. For example, another report conducted as part of this study will estimate, by age and region, the total pool of children whose family qualifies for IE or DTA child care. Also, as noted, there is more attention on the pool of children eligible for DCF child care.
- **Other data.** Additional data about the children and families currently receiving child care services could improve modeling, particularly when modeling policy shifts. For example, it might be useful to know more about the children on DCF care. How many of them are children of foster parents? How many are children still living with their parents? Of the children and families receiving DTA child care, how many are in families still receiving cash assistance and how many have exited from cash assistance? What is the average length of assistance for each of the primary accounts? How many children transition from the DTA account to the IE account? What happens as children age out of their age-specific contracted slot? Though such data may not be needed to forecast spending within the year or even a full year ahead, they might be useful to better understand the budgetary effect of future policy changes.

5. **Consider the benefit of viewing some forecasting issues from the broader perspective of caseload management and service delivery.**

   Forecasting errors (differences between forecasts and actual practice) can focus attention on the need to improve the forecast model, but they also can flag areas for improvement in caseload management and service delivery. An example from another state may be useful.

   As already noted, one former CCDF administrator explained that after a multi-month period of closed access and waiting lists, access was reopened, but it took so long for providers and families to respond that the state ended up with a surplus, angering advocates within the state. This surplus could be viewed as a forecasting problem, and indeed the agency underestimated how long it would take for the word to get out to families that access was now open. However, the problem revealed an opportunity to change the way the agency communicated the existence of budget surpluses (or deficits) to the child care community. Specifically, the agency started holding quarterly meetings with providers and the advocate community to give them timely data on whether the budget was tight or had extra funds. Consequently, providers became more nimble in responding to changes in funding, improving the agency's ability to manage its caseload.

   A somewhat similar example is already occurring in Massachusetts. As underutilization of contracts has increased, there has been a two-fold approach. First, the forecasting models have been adjusted to more explicitly adjust for contract utilization. Simultaneously, the agency has taken steps to communicate with providers, initially contacting those with the lowest utilization rates to identify their issues with serving children. Such efforts merit continuation to address the broader service delivery issues related to contract underutilization. Why are providers having trouble filling spots? Are the categories for contracted slots defined too tightly? What should be the policies on reallocating unused contracted slots? Could further communication with child care resource and referral agencies and providers improve the agency's ability to manage IE caseloads to fit with available resources?

   These are just two examples of how problems that may first appear to be forecasting issues can provide opportunities for the agency to take a deeper look at how it can improve caseload management and service delivery.

6. **Consider changing the structure of budgetary accounts** to reduce the expectation that the IE account will buffer the other two accounts from spending fluctuations.

   We offer two possible proposals to stimulate thinking around this concept, with the caution that further study by budgetary experts within Massachusetts would be needed before either of these ideas is endorsed.

   » **Consider managing the two entitlement accounts as one funding stream and limit transfers between the IE account and the other two accounts to only unusual circumstances.**

   Both former CCDF administrators spoke of collapsing multiple programs into one as a way of reducing budgeting challenges and achieving other policy goals. However, it is challenging to combine programs with immediate access (entitlement accounts) and programs where access can be closed if funds are insufficient (discretionary accounts). We therefore propose exploring the pros and cons of managing the two entitlement accounts as if they were one funding stream.[4] Immediate access would be provided to families applying to either program, so neither program would be cut back to meet the needs of the other. If funds were to run low in either program, the agency would need to ask for a supplemental appropriation (unless the other program was projecting a deficit). It is true that EEC would need to ask for supplemental appropriations on occasion, a position that is never comfortable, but when a supplemental request is for an entitlement program that grows for reasons outside the agency's control, it is not viewed as an indication of mismanagement. Similarly, a joint funding stream of the DTA account and Supportive Child Care account would have small surpluses in most years, but this would not be viewed as taking away services from families, because services are provided to all referred families.

   An advantage of this approach is that the IE account could be managed more effectively because its appropriation for the year would be known from the outset and it would not be constantly shifting with changes in the end-of-year balances of the Supportive Child Care and DTA accounts. Decoupling the IE account from the other two accounts would reduce pressure on EEC to manage the IE account conservatively because it acts as a buffer for the other two accounts.

   » **Consider authorizing the IE account to routinely carry up to 3 percent of funds from one year to the next through a Prior Appropriation Continued account.**

   This change would make it easier for EEC to manage the IE account by explicitly setting aside a buffer for use by any of the three accounts. At the end of each year, up to 3 percent of the IE account appropriation could be carried over to the next

year. We suggest that the agency not aim to carry over the full 3 percent and instead set a lower target. For example, planning to spend all but 1.5 percent on the IE caseload and reserving only 1.5 percent of the IE account as a buffer. If this had been in place in 2013, the agency would have planned to spend $228.4 million out of its $231.9 million appropriation on IE vouchers and contracts and reserved $3.5 million (1.5 percent) as a buffer in case the other accounts needed it, with permission to carry over between $0 and $6.96 million (3 percent), depending on what happened at the end of the year. In preparing maintenance budgets annually, the agency would continue the current practice of estimating what is needed to maintain the IE caseload without requesting an additional buffer of 1.5 to 3 percent, because the buffer would be funded out of the Prior Appropriation Continued from the previous year. Thus, with the possible exception of the first year of implementation, the appropriation level should not be affected by the availability of the Prior Appropriation Continued, which would simply fund a self-sustaining buffer for use by any of the three accounts.

Notes

1. Effective August 2014, the committee name was changed to Oversight Committee.
2. Our caution against adding additional external variables to the forecasting models applies to the models for all three accounts, though there are differences between them. In the case of income-eligible child care, even if one could estimate demand for child care (which would be hard to do with sufficient precision to drive annual budget forecasts), there are insufficient funds to serve all children. DTA caseloads are hard to correlate with economic conditions or population dynamics because many factors affect family entry to and exit from DTA cash assistance (and entrants and recent exits may increase the demand for DTA child care services). One could explore whether there is a correlation between the number of families receiving DTA cash assistance and the number of children on DTA child care. However, even if such a correlation existed, there would be logistical challenges with building them into annual budget projections: Each September, EEC would have to wait for DTA caseload projections to be completed before making its own, adding complexity to the timing of developing the budget. Further, the EEC projections would only be improved if the DTA caseload projections were reliable. Finally, DCF caseloads are driven by many factors other than the economy or population dynamics. For example, national experts are still figuring out why caseloads in most states declined during the most recent recession. Therefore, though understanding more about the total pool of children seen by DCF would be useful for long-term planning, the current forecasting model suffices for forecasting annual expenditures (absent major policy changes).
3. The current models already use a weighted average-cost approach to capture cost variations caused by type of care (center or family day care), regional differences in rates, transportation costs, parent fees, and other factors. We propose treating differences by age similarly to all these other differences that drive costs. However, if there was a strong desire to maintain average costs for each age group (for example, if one foresaw policy shifts that would change rates for one group and not another), one could still project a single caseload with an assumed growth rate and allocate it across age groups (e.g., 15 percent infants, 50 percent toddlers). Alternatively, one could adopt this change for certain sectors of the model (for example, IE vouchers) but not others.
4. The most radical change would be to combine the two entitlement accounts into one account. Another option would be to retain the two separate accounts but increase the transferability of funds between them (and limit transfers with the IE account to those of unusual circumstances).

Reference

Special Commission on Early Education and Care Operations and Finances. 2013. *Recommendations of the Special Commission on Early Education and Care Operations and Finances*. Boston: Commonwealth of Massachusetts. http://www.mass.gov/edu/docs/eec/2014/20140113-eec-special-commission-rpt.pdf.

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