Improving 3K-for-All Access in NYC

Prepared by Yue Li
Master of Public Policy Candidate

University of Virginia
Frank Batten School of Leadership and Public Policy

Prepared for

NYC Mayor's Office for Economic Opportunity

Table of Contents

Acknowledgement

I would like to thank NYC Mayors' Office for Economic Opportunity, especially their Senior Research Associate Debipriya Chetterjee, for kindly providing me with this valuable opportunity to conduct this project and for willing to answer my questions, and offer advice. Furthermore, I am thankful for Shivani Nayyar, my supervisor as I interned with Human Development Report Office at UNDP, for connecting me with Debipriya to make this project possible.

I would also like to thank my advisor Professor Lucy Bassett for being patient and kind, and offering me suggestions and support throughout the process. Professor Bassett's attention to detail and rigor have impacted not only the way I wrote this report, but will continue to positively affect my career in many ways.

Finally, I would like to thank my classmate Walter Herring for providing me with thoughtful feedback and suggestion for this report. Also, my classmates in the Batten School's MPP class of 2019 have helped me in many ways for new ideas and support.

Disclaimer

The author conducted this study as part of the program of professional education at the Frank Batten School of Leadership and Public Policy, University of Virginia. This paper is submitted in partial fulfillment of the course requirements for the Master of Public Policy degree. The judgements and conclusions are solely those of the author, and are not necessarily endorsed by the Batten School, the University, or any other agency.

Acronyms

3K	3K-for-All
ACS	Administration for Children's Services
CBO	Community-based Organizations
DOE	Department of Education
DSS	Department of Social Services
ECE	Early Childhood Education
FPL	Federal Poverty Level
HRA	Human Resources Administration
NYC	New York City
PKA	Pre-K for All
UPK	Universal Pre-Kindergarten

Executive Summary

As the importance of early childhood education is widely accepted by the public, an increasing number of cities and states begin to invest heavily on Pre-K education. New York City is taking the lead as it is one of the few cities that offer universal Pre-K programs across the country. Building upon the successful expansion of PKA, which is the city's universal Pre-K program for all 4-year-olds, the city is in the process of rolling out 3K-for-All, a program that provides universal Pre-K education for all the 3-year-olds. However, the expansion of 3K can be more challenging than PKA, which is built on a well-developed network of providers. The rollout of 3K is impeded by limited supply of facilities and unsecured budget. These challenges pose the policy problem, which is how to scale up 3K and improve 3-year-olds access to quality early childhood education, especially for low-income children.

Based on the reality of NYC's Pre-K system and the findings from literature review, this report proposes three policy alternatives to improve 3K access: 1) establish a unified compensation system for teachers at all 3K providers; 2) include family child care into the 3K system; 3) integrate subsidized child care system with 3K. Each alternative is assessed on three criteria, which include cost-effectiveness in terms of cost per additional slot gained, feasibility and equity.

The report recommends that DOE pursues Option 2 to improve Pre-K access for NYC's 3-year-olds, which is including family child care into the 3K system. Of the three alternatives, this option generates the lowest cost per additional slot gained. It is highly feasible in terms of both political and administrative feasibility. In addition, it is able to reach a relatively higher share of low-income children compared to other options.

Problem Statement

Early childhood education is receiving widespread attention as it offers various benefits that prepares children's future success. NYC is taking the lead as it is one of the few cities that offer universal pre-k programs in the country. Based on the success of UPK, which is the city's universal pre-k program for 4 years old. Mayor de Blasio decided to expand universal Pre-K to all 3-year-olds within 4 years. **However, with the challenge of limited supply of infrastructure and unsecured budget of 3K-for-All, the policy problem becomes how to improve the 3-year-olds' access to quality early education in NYC, particularly for those from low-income families, thus achieving the goal it sets to provide 19,000 slots by 2022 and increasing equity in NYC.**

Background

The Importance of Early Childhood Education

Never before has the public focused so much on early childhood education (ECE). ECE is considered as one of the most effective ways to promote children's educational success. Children's early years before they enter primary school are considered to be a time when their brains develop more rapidly and are more susceptible to impacts than any other time in their life (Blair & Raver, 2016). Investment in early years and quality Pre-K education would make sustainable effects on their development and learning. While some benefits of Pre-K education are notable in the first several years of primary school, many can be realized later in their lives. Those benefits include the reduced need for remedial education services, improved educational attainment, lowered costs associated with criminal activity, and improved health and consequent reduction in medical costs (Reynolds & Temple, 2006). Research also suggests that quality Pre-K program could generate benefits of as much as $8 to $14 for every $1 invested, and reduce the future poverty rates of participants by between 5 percent and 15 percent (Duncan, Ludwig, & Magnuson, 2007). In addition to the benefits to the children, early childhood programs enable parents particularly low-income parents to work, thus bolstering family income.

However, in spite of the rosy effect of Pre-K education, some evidence also indicates that the Pre-K advantage might fade out by the beginning of primary school and thereafter (Lipsey, Farran, & Durkin, 2018). Some researchers attribute the fade out effect to the factor that children who receive

Pre-K education would be ineligible to receive additional teachers' support as a result of their improved performance (Cooper, Allen, Patall, & Dent, 2010). Another possibility is that poorer-performing students may get increased attention from their teachers (Farkas and Duffett, 2008, Loveless, 2008) and then catch up to the higher-performing students who receive Pre-K education (Leppanen et at., 2004, Scheerens et al., 2003).

Two Years vs. One Year

Research shows that children who attend two years of preschool at both ages three and four obtain significantly greater gains in math, language, and social-emotional skills than children receiving only one year of preschool (Ramey, Ramey & Stokes, 2009). Also, in a study on Chicago Child-Parent Program, Reynolds (1995) found that two years of preschool increases children's school readiness more than one year at kindergarten entry. The result is also consistent with findings of a study on Head Start programs (Wheeler, 2002). Research further shows that two years of Pre-K education has greater benefits than a single year of preschool, especially for the most disadvantaged children ("Modeling the Impacts," 2003). These benefits are particularly significant for disadvantaged children, who may need more than one year of Pre-K education to narrow the achievement gap with their affluent peers.

ECE Gap for Low Income Children

Four decades of research has indicated that quality preschool experiences benefit children from disadvantaged family backgrounds more and better prepare them for primary school entry (Barnett, 1995; Brooks-Gunn, 2003; Frede, 1995; Haskins, 1989; National Research Council, 2000, 2001; Yoshikawa, 1995). However, public provision of Pre-K programs for disadvantage children remain scarce and underfunded in the US (Zigler, Gilliam & Jones, 2006). In terms of achievement gap, the focus is generally on older students, but some researchers are quantifying the learning disparity in the preschool years. The study, *Inequality at the Starting Gate*, issued by Economic Policy Institute shows that before kindergarten entry, children in the top quintile of socioeconomic group scores 60% higher than children in the bottom quintile (Lee & Burkam, 2002). Also, a review of national datasets on preschool and child care shows that at age four, children living at poverty are 18 months below the development norm compared to their peers (Layzer, in press). For poorest children, the gap becomes even larger, and neither time nor the early years of primary school have closed the gap. The inequality that starts before kindergarten may affect performance in the first several years of

school, which then sets students on a less successful path through middle school, high school, and life.

These inequities in cognitive skills at kindergarten entry may be the result of inequitable access to preschool. Although federal and state subsidies have greatly improved children's access to preschool programs in recent years in the US, low-income children are still significantly under-enrolled. Analysis of data from the National Household Education Surveys for 2005 and 2007 indicates that at age three, only forty percent of children in the lowest income quintile and the middle income quintile are enrolled in a Pre-K program, while eighty percent of children in the top income quintile attend a Pre-K program. In addition, the disparities in children's access to preschool are actually larger and have been growing for 3-year-olds as compared to 4-year-olds (Chaudry et al., 2017). In addition to lower access to early child care, low income children are more likely to enroll in lower quality programs. As a result, enrolling low income children in lower quality program would widen the achievement gap between poor and rich children (Kagan, 2009).

Barriers to Access to Quality Early Child Care

There are some roadblocks that prevent children particularly children from low-income families from accessing quality early child care.

Accessibility: even if there is sufficient supply of preschool programs in the community, families are still confronted with challenges of accessing preschool options. Some programs like NYC's PKA and 3K have strict enrollment eligibility that only give enrollment priority to children who live in the district. However, the Pre-K program can be unequally distributed. For instance, high-poverty districts tend to have fewer supply of quality early education programs compared to more affluent areas (Policy Analysis for California Education, 2012). In NYC, wealthy district like Manhattan has 43 slots per 100 children as compared to 25 slots per 100 children in less wealthy district like Bronx (Fuller & Castillo, 2015). In addition to enrollment requirement for where participants live, many publicly-funded child care programs such as Head Start and NYC's EarlyLearn have strict income eligibility that prevent the majority of children from accessing.

Availability: a lack of adequate supply of quality child care and affordable Pre-K options in the nearby community prevents parents from enrolling their children into Pre-K programs. In addition,

a limited supply of child care operated at after-school hours may constrain parents' choices, as many working families have inflexible working schedules that do not match the operating hours of child care provider they could attend.

Affordability: child care cost is expensive and unaffordable for families throughout the country. According to a report issued by Child Care Aware, national data reveals that child care cost accounts for 35.6% of total household income for a single parent, which is far above the 7% line recommended by the U.S. Department of Health and Human Services (2017). Among all states across America, New York ranks the top as the least affordable state in terms of child care cost for 4-year-olds in center-based providers, and the third in terms of family-based providers (Child Care Aware, 2017). Data also shows that the cost of center-based child care accounts for 110% of married family with two children below poverty line in New York (Child Care Aware, 2017).

Awareness: a lack of awareness of child care options and the importance of quality child care may restrict parents' choices to enroll their children to quality child care. Many parents might not know the child care options that are available to them. Parents may prefer informal child care, such as relatives, neighbors and friends to care for their children, because they are unaware of the important role of quality child care plays in children' s development. Satisfaction with immediate relatives may make parents reluctant to search for other child care options (Chaudry et al., 2017). In NYC, two-thirds of child care vouchers were still redeemed in informal providers or family-based providers in 2015 even if parents were allowed to choose from a variety of formal child care options offered in school- or center-based providers (NYC Independent Budget Office, 2017). The preference of using informal child care over structured Pre-K programs puts children from low-income families at a disadvantage that could be further aggravated.

NYC Early Child Care System

Currently, the NYC early childhood care and education system provides child care services for all the NYC children under 5. The system can be divided into publicly funded child care programs and privately run child care programs. The publicly funded child care programs include universal early childhood programs and subsidized programs, which is explained as the table below:

Universal early childhood program	
Pre-K for All (PKA)	- Provides free pre-school education to all 4-year-olds - Provides services only for school day/year - Provided in contracted schools and centers - Administered by DOE
3K-for-All (3K)	- Provides free pre-school education to all 3-year-olds - Provides services only for school day/year - Provided in contracted schools and centers - Administered by DOE
Subsidized child care program	
ACS EarlyLearn and NYC Head Start (contracted)	- Provides free or affordable child care and education to eligible children 0-5 - Provides services for school day/year and extended day/year - Provided in center- and family-based providers directly contracted with ACS - Previously administered by ACS and is transitioning to DOE
Voucher-based providers	- Provides free or low cost child care to eligible children ages 6 weeks through 12 years - Provides services for school day/year and extended day/year - Redeemed mainly in non-contracted centers that accept vouchers, non-contracted family-based providers and for informal child care provided by friends, relative, etc - Provided by the Human Resources Administration (HRA) division of Department of Social Services (DSS) and administered by ACS

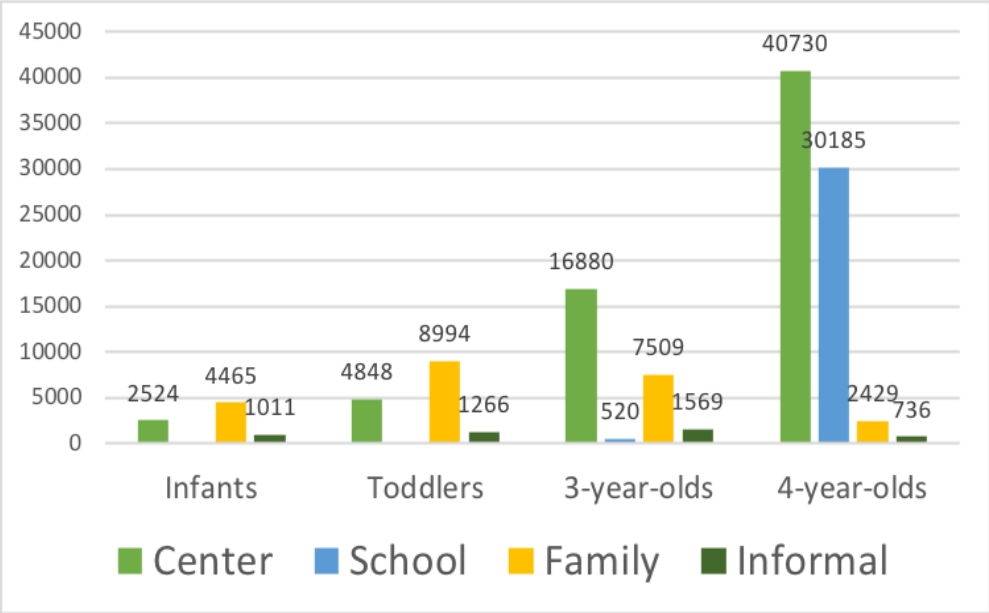
(Source: Citizen's Committee for Children)

- **3-Year-Olds Enrollment in Publicly-Funded Providers**

According to the Census data, New York City has a half a million of children under 5 in 2017 and about 50% live below 200% of the Federal Poverty Level ($50,000 for family of 4). Specifically for 3-year-olds, the number is about 108,590, among which, 26.3% fall under the 200% FPL. Based on the data provided by Citizen's Committee for Children, about 26,478 (24%) of 3-year-olds are

enrolled in publicly funded early child care providers in 2017. As Figure 1 shows, among all 3-year-olds enrolled in publicly funded child care providers, about 64% are enrolled in center-based child care providers and 28% enrolled in family-based providers. Almost 70% of children in licensed family-based providers are toddlers and 3-year-olds. Currently, schools mainly serve 4-year-olds.

Figure 1: NYC Children under 5 Enrolled in Publicly Funded Child Care Providers by Age and Type, 2017



(Source: Citizens' Committee for Children)

The subsidized child care system in NYC can be further divided into two category: voucher-based and contracted. Figure 2 shows the number of 3-year-olds of each category. Figure 3 shows the number of 3-year-olds served by contracted providers of different types. Among all the 3-year-olds in the contracted providers, about 78% are served by center-based providers and 19% are served by family-based providers.

Figure 2: NYC 3-Year-Olds Enrolled in Publicly Funded Providers by Type, 2017

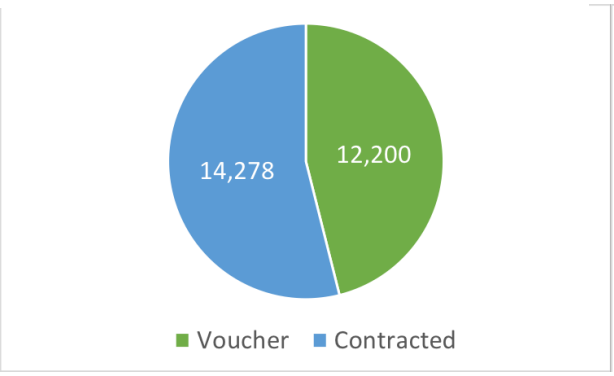
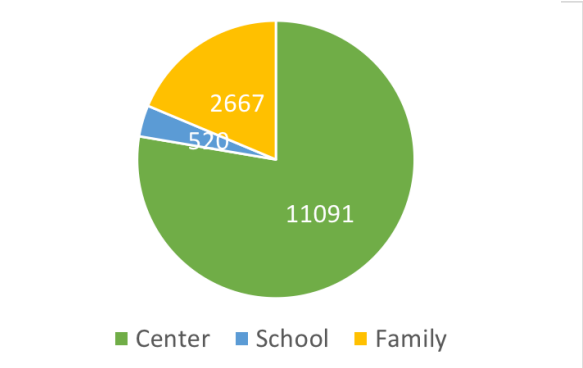


Figure xxx: NYC 3-Year-Olds Enrolled in Contracted Providers by Type, 2017



(Source: Citizens' Committee for Children)

NYC 3K-for-All

In 2014, Mayor de Blasio launched his signature initiative - PKA, an early childhood education program that provides free, full-day and quality pre-school education for all the 4-year-olds in NYC. After two years' quick expansion, more than 70,000 4-year-olds are enrolled in the system by far (Shapiro, 2019). The program not only reached a high coverage of targeted children, but also generated positive student outcomes in terms of improvement in academic skills and executive functioning skills (Westat, n.d.).

Based on the success of PKA, the city initiated 3K-for-All, a program that intends to include all the 3-year-olds into the city's universal Pre-K system. With 3K-for-All, New York seeks to become the second city in the country, following Washington, D.C., to make preschool education universally accessible to all the 3-year-olds. Unlike the rapid rollout of PKA, the city is expanding 3K more gradually, adding several school districts each year through 2021-2022, with a priority first on districts with high concentration of poverty. So far, the program has rolled out in six of the city's 32 school districts, serving about 5,000 kids. It aims to enroll more than 19,000 3-year-olds in 12 school districts by 2020-2021. Scaling up 3K is a necessary step forward in order to prepare a brighter future for NYC's youngest children. Providing quality and affordable child care is also an important step to promote equity for New York families, especially for those living in poverty. However, with various barriers, whether this bold initiative would rollout successfully and close the gap in access and reduce inequality remains unknown.

- **Challenges to implementation**

Insufficient infrastructure

New York City has very good universal Pre-K design, which includes components that serve the interests of the most disadvantaged children, ensuring high quality of service, and addressing problems of achievement gaps. However, the implementation of 3K-for-All could be more challenging than the UPK rollout for 4-year-olds. One of the most obvious challenges is bringing 3K to scale. Unlike PKA which is built on a well-developed network of Pre-K providers of various types, 3K has less existing facilities and resources to build on (Hoz, 2018). Additionally, one fourth of the 61 schools added to 3K were already exceeding their full capacity ("Class Size Matters", 2018).

Fragmented Pre-K system

Nationwide, New York City is pineering to provide universal Pre-K education to all the 3-year-olds and 4-year-olds. NYC is among one of the few cities or states that successfully provide universal Pre-K education for more than 70% of 4-year-olds. However, the rapid expansion of universal access is realized through a mixed delivery system which uses a wide range of child care providers, such as public schools, community-based organizations and family-based providers. The programs in each arrangement have disparate supervising agencies, eligibility, standards, working hours, teachers' qualifications and funding sources, which result in unequal Pre-K quality (Reid et al., 2019). A recent study found that NYC's school-based Pre-K providers which are better resourced score higher on CLASS (an assessment tool to evaluate process quality of Pre-K classroom) than CBOz which generally serve more low-income children (Reid et al., 2019). The fragmented Pre-K system is likely to pose serious challenges for NYC to provide equitable, effective, and quality universal Pre-K education for its children.

Crowd-out effect on Community-Based Organizations (CBO)

To achieve full implementation of 3K-for-All, private CBOs can be an indispensable part of Pre-K system. The successful rollout of 3K-for-All's predecessor, PKA, is realized through the utilization of CBOs. However, with the expansion of PKA, the capacity of the Pre-K system has shrunk, with about 15,000 slots lost since it was first implemented in 2012 (ACS, 2017). The crowd-out effects is likely due to the unequal compensation between CBO teachers and school teachers, higher program quality at school-based providers perceived by parents, and

comparatively simpler enrollment process at PKA and 3K which only ask for age eligibility. Teachers with higher qualification have left private CBOs to seek jobs for the DOE schools, where compensation is higher with fewer working hours. It is reported that CBO teachers earn $30,000 less than school teachers on average and are less likely to have other benefits, and the salary gap is even wider for administrators, with $53,000 less for CBO administrators (Reid et al., 2019). If nothing is being done to counter the trend, the crowd-out effect would further diminish the already limited supply of early education available to the poor and disadvantaged children, thus jeopardizing the plan of 3K-for-All to provide universal access to all the 3-year-olds.

Literature Review: Interventions to Improve Access to Pre-school Education

Within the context of rapid preschool expansion, there is a growing body of research to identify what government intervention works to improve early childhood education access.

Universal Preschool Program

Public provision of universal preschool program has many benefits, which include diversity in classroom, benefits to both middle-class and low-income children, and broad political support (Potter, 2017). Emerging evidence shows that the positive impacts of early education for poor children can be strengthened when they enroll in programs with children from a mixed socioeconomic background (Malakoff, 2006). When children share common experiences with a diverse class, they also share language, ideas, creativity and skills. Thus, universal preschool prevents social or ethnic segregation and helps promote diversity which reaps peer effects that are conducive for their learning.

Barnett also argues that universal Pre-K will reach greater share of low income children and generate greater educational gains for disadvantaged children (2011). Research shows that the UPK program for four-year-olds in Tulsa, Oklahoma has strong beneficial impacts on children's language and cognitive test scores, especially for Hispanic children and black children (Gormley & Philips, 2005). Several other studies also have found that gains in achievement for disadvantaged children when

they enroll in Pre-K program with more advantaged peers (Schechter & Bye, 2007; Sylva, Melhuish, Sammons, Blatchford, & Taggart, 2004). Yet, there is little research on the effect of universal preschool program for three-year-olds. Thus whether the effect of UPK can be validated for three-year-olds remains unknown.

Although 40 states have public-funded pre-k programs, only three states (Oklahoma, Georgia, and Florida) have truly rolled out universal pre-k program (Quinn, 2017). Few studies have explored the impact of universal child care on child care provision. One study, however, finds that government subsidy, a funding mechanism that include all providers as universal Pre-K providers, works more effectively in program expansion relative to direct government provision (Bassok, Fitzpatrick & Loeb, 2014).

Targeted Preschool Program

Within the field of early childhood policy, the debate over the advantage of universal Pre-K versus targeted programs that serve low-income and at-risk children has been around for a long time. When there is insufficient government funding, it makes sense to target the neediest population first. Different from universal pre-K, targeted programs specifically serve children with particular characteristics or special needs. Finn (2009) argued that limited resources should be used to provide children with greater need with high quality programs, particularly if the goal of policy is to narrow the achievement gap. Proponents for target programs point out that though universal programs generate higher total net return, a better criterion to evaluate the policy is the per-child rate of return. Others argue that public funding of all services to all children would crowd out private sector (Besharov & Call, 2008).

Family-based Child Care

Family-based child care is an indispensable part of the pre-k system. It provides small and homie environment for families to care for their little children in a non-parental setting, particularly for disadvantaged families (Bromer, MaCabe, & Porter, 2013). Family-based child care may include a variety of types including formal and regulated providers, and informal and unregulated arrangements. Yet nationwide, family-based providers are often considered to have substandard quality as compared to center-based providers which are structured like school setting and are better resourced with funding and qualified teachers. Based on data provided by the National Center for

Education Statistics, about 90% of the family-based providers have low or mediocre quality, and only 4% reached high quality for children in poverty (Hurley & Chen, 2016).

Although family-based child care can be seen everywhere, literature rarely focuses on how to formally include them into the Pre-K system and there is scant evidence on how to improve the quality of family-based providers. Emerging evidence shows that family child care providers that receive professional support yield higher quality (Porter et al., 2010). And particularly family-based providers that are associated with family child care network are found to be an indicator of higher quality care (Bromer, 2009). Specifically, networks that develop providers through supportive relationships with feedback and frequent communication had the greatest impact on quality improvement for affiliated providers (Bromer, 2009). Among many of the efforts of including family-based child care into the Pre-K expansion, LAUP is one of the few successful programs which invests extensively in quality improvement through a tiered payment system (Hurley & Butel, 2018).

Family-based child care providers often encompass a wide cultural and language diversity. The unique characteristic requires support to be culturally adapted and tailored to the needs of each family-based provider. Research shows that the national Parent Child Home Program (PCHP) which uses home visitors who speak the same language as the provider has helped the family-based provider better interact with children and increased children's attendance (Hurley & Chen, 2016).

Child Care Voucher

Child care vouchers issued by government have been widely used in many countries to improve child care access and promote parental choice. They are used to promote employment especially for low-income parents who cannot cover child care expenditures. Studies find that some of the benefits of using vouchers include more flexibility on the demand side and increased competition on the supply market (Hipp & Warner, 2008). However, evidence on child care decisions suggest that parents favor cost and convenience over quality (Kim & Fram, 2009). As a result, many choose to redeem vouchers in informal and unregulated providers that provide care in extended hours in addition to standard hours. It is also argued that due to information asymmetries, parents may have difficulty differentiating various child care options and quality (Helburn & Bergmann, 2002). Therefore, issuing child care voucher alone does not necessarily make parents purchase quality child

care. Research indicates that government should play a crucial role in quality control of the child care market including formal and informal providers (Warner & Gradus, 2011).

However, there is little research on what makes effective quality control. In the US, the problem of parental preference for child care is tackled at the state level. In North Caroline, a tiered reimbursement system and information sharing system for parents are used in conjunction with the voucher system. The program reveals significant gains in the quality of providers (Warner & Gradus, 2011). Evidence from other countries may also provide some idea for reference. In Netherlands, the provider should meet centain quality rules in order to receive a voucher (Warner & Gradus, 2011).

Policy Options

1. Establish a Unified Compensation System for Teachers at all 3K Providers

This alternative recommends that the city should ensure immediate pay equity between Pre-K teachers at CBOs and Pre-K teachers at schools. Admittedly, there are more state-certified Pre-K teachers at schools with higher degrees than the number of teachers at CBOs. The pay disparity certainly reflected the reality of the disparity in teacher qualifications to some extent, but CBO teachers generally work longer hours and teach more disadvantaged children with greater needs than school teachers. Many CBO administrators expressed the difficulty in recruiting and retaining quality teachers, because qualified teachers are more likely to seek jobs at public schools where compensation is higher and working hours are fewer. To prevent qualified teachers from leaving CBOs, the option would require policymakers to establish a unified salary system that compensate teachers at all settings equally. To be specific, teachers of similar qualifications at all providers, regardless of public school or private community-based providers, should be paid based on the actual hours worked. This should apply to all Pre-K teachers and administrators across from all 3K providers. In addition to the equal payment, teachers at CBOs should receive the same health insurance as school teachers do. In order to retain current teachers and entice new teachers, teacher incentive plan should also be considered. For instance, building career ladders with higher job positions and compensation incentive mechanism that pays teachers more with gains in qualification or skills. A unified compensation system would help NYC utilize its existing resources to scale up 3K more effectively and equitably.

Currently, with the management of EarlyLearn (which contracts with the majority of CBOs) shifting from ACS to DOE, NYC is in its process of creating a more unified Pre-K system for children from 0 to 5. The transition puts DOE on a better position to solve the problem of pay disparity. This policy requires DOE to create a more unified Pre-K system through equal payment based on the same compensation rate for teachers at all 3K providers. By raising the salary of CBO teachers to the level similar to the salary of school teachers, CBOs are better able to retain qualified teachers and fill the current vacancies resulted from the expansion of PKA and 3K. To do this, DOE needs to create a new financing system to include CBO teachers and make payments using the unified standard.

2. Include Family Child Care into the 3K System

Family-based child care is the most common form for New York's youngest and poorest children. By mandate, family-based child care providers can serve no more than 12 full-time children. In NYC, almost 20% of children under 5 are enrolled in publicly-funded family-based child care (Citizens' Committee for Children, 2017). Currently in NYC, the total number of home-based providers receiving subsidy is about 13,367, which includes informal child care providers – i.e. relatives, friends and neighbors. The number of licensed family-based providers take up 40% (5346) of the total, and only 13% (1,748) are contracted with EarlyLearn (Hurley & Shen). Therefore, family-based providers have great potential to bring 3K up to scale. This alternative recommends that the 3K-for-All initiative includse family child care providers into the system. Adding family child care to the 3K system will allow the city to more easily serve 3-year-olds in neighborhoods where space in schools and child care centers is tight. It means that DOE will need to contract more licensed family child care providers which are previously paid by families themselves or through vouchers. Before DOE took over management of EarlyLearn from ACS, DOE has already established some collaboration with family child care programs, but they contracted with ACS to provide subsidized child care for mostly babies and toddlers.

However, bringing family-based providers into 3K also means bringing the quality of family child care to the similar standard of 3K at schools. Family-based child care are traditionally considered to have sub-standard quality, as they are operated mostly with less funding and by teachers who have lower qualifications compared with school teachers. Those teachers usually receive minimum wages paid by families or government vouchers. To ensure 3K family-based providers could provide

quality care to the 3-year-olds, especially those low-income children, family-based providers need to be adequately supported and compensated. DOE should consider a tiered payment system, which gives a higher per-child subsidy to family child care for meeting a certain quality benchmark. For example, give higher subsidy for teachers gaining new credentials. This could help create a career ladder for family child care teachers, growing the city's pool of qualified and certified Pre-K teachers. In addition, DOE should set higher and uniform standards for the family child care providers. For example, family child care programs must use an evidence-based curriculum that aligns with the one used in school-based programs. All family child care providers enrolled in 3K must conduct formative and summative assessments to track children's development and educational progress.

3. Integrate Subsidized Child Care System with 3K

Two unintended consequences of the expansion of Pre-K for All and 3K is the attrition of CBO teachers and shrinking capacity of CBOs to serve children of preschool age. The expansion has caused many programs at CBOs under-enrolled or in frequent flux, and the centers struggling to operate. Based on the ACS data, enrollment in EarlyLearn programs of children eligible for PKA has decreased by 20 percent (ACS, 2017). One reason is that families eligible for PKA or 3K have more options to enroll their children. Parents are more likely to choose universal programs over subsidized programs – i.e. EarlyLearn or voucher programs, as universal programs are perceived to have better quality with more government funding. Also, the application progress is simpler for universal program, which only asks if the child is born during a specific year. Subsidized programs (EarlyLearn and voucher program), however, usually target disadvantaged children living in poverty, which have strict income eligibility requirements and complicated and lengthy process. If 3K is to be rolled out successfully, subsidized providers is an integral part to be included.

This alternative recommends 3K system to integrate subsidized providers by creating a unified Pre-K system administered by DOE. In other words, it means that EarlyLearn uses the same eligibility requirement as 3K for enrolling eligible children, which only asks if the child is born in a specific year. In this way, what's bane for subsidized providers can be a boon as the city scales up its 3K initiative. And ACS needs to gradually reduce and then stop giving out child care vouchers to 3-year-olds when 3K achieves full coverage. To bring 3K to scale, it would require DOE to recruit from a larger network of subsidized child care providers which are not contracted with ACS or DOE yet. In

order to help those providers meet the higher standard of 3K, DOE needs to create a task force to support the registered child care providers through information dissemination and training.

To bridge the structural divide in all settings, DOE needs to consolidate its role that unifies the Pre-K system through creating uniform policies and standard that can be applied to all contracted 3K providers. The policies should detail the quality standard of 3K, curriculum, assessment, teacher qualification and compensation etc. DOE should recognize that different levels of support are needed to ensure quality programs in all providers based on their needs, such as achieving pay parity for CBO teachers with similar qualification as school teachers, and creating professional development opportunities for CBO teachers. In addition, since subsidized child care providers are integrated into the 3K system, the waitlists of 3K eligible children will be shared among all 3K providers, so that DOE representatives will call families waitlisted in early education programs to offer them seats at under-enrolled providers.

Evaluative Criteria

The following criteria will serve as evaluative measure to assess each proposed policy options:

1. Cost-effectiveness

Cost-effectiveness will project the relative cost per outcome for each policy option. First, I will estimate the effectiveness of each alternative – specifically, the increase in enrollment of eligible 3K-for-All children over a program lifespan of 3 years. Second, cost of each alternative will be projected based on a review of the published report and existing data. Total costs refer to the implementation costs required by DOE, which are also calculated over a three-year time horizon. All costs used in this analysis will be discounted at a 7% yearly discount rate, as is recommended for government programs by the US Office of Management and Budget. By combining cost and effectiveness, the criterion will be presented as the cost per additional child enrolled in 3K-for-All. I assign weights of 40% to this criteria.

2. Feasibility

Each policy option will be evaluated based on their feasibility, in terms of political feasibility, and feasibility of implementation. Political feasibility refers to the possibility that an alternative will win political support from the city government. It is important as it determines whether the policy will be granted the funding it needs to be implemented. Feasibility of implementation refers to the ease with which a policy option could be implemented in NYC. Political feasibility and feasibility of implementation will be measured with a 3-point scale individually, as 1 for low feasibility, 2 for medium feasibility and 3 for high feasibility. Both sub-criteria will be weighted equally and an average score will be calculated to measure overall feasibility. I assign 30% to this criteria.

3. Equity

Access to quality preschool can be an issue for all the 3-year-olds in New York, but children from low-income or low-socioeconomic families face unique challenges due to the limited child care options left for them and the under-provision of 3K options. The goal of the project is to improve access to 3K education for low-income children. To measure equity, I assign to each alternative a number that equals the share of the target population affected by that alternative. This criteria is based on the fact that all of these alternatives promote access to 3K. It functions to help balance the priority of improving access while also ensuring that 3K is provided in an equitable way that benefit the children from low-income families. I assign 30% to this criteria.

Outcome Matrix

The outcome matrix below evaluates each policy alternative in cost-effectiveness, equity and feasibility. Cost is calculated based on 7% discount rate.

Options	Cost-Effectiveness	Equity	Feasibility
1. Establish a unified compensation system for teachers at all 3K providers	Cost: $72M	0.58	Political: 3
	Effectiveness: 7086		Administrative:2
	Cost-effectiveness: $10,218 per slot gained		Overall: 2.5

2. Include Family Child Care in the 3K system	Cost: $94M	0.75	Political: 3
	Effectiveness: 14434		Administrative: 2
	Cost-effectiveness: $6514 per slot gained		Overall: 2.5
3. Integrate subsidized child care system with 3K	Cost: $149M	0.63	Political: 2
	Effectiveness: 13122		Administrative:1
	Cost-effectiveness: $11349		Overall:1.5

<u>Option 1: Establish a Unified Compensation System for Teachers at All 3K Providers</u>

- **Cost-effectiveness:**

This option requires approximately $72 million for implementation in three years' time, which is the cost to New York City to establish a unified compensation system for teachers at all 3K providers. I did not have the data on the number of pre-k staff at community-based organizations. The figure is an estimate based on the required teachers and number of current enrollment of 3 year-olds at center-based and family-based providers that are city-contracted. The number of Pre-K staff is calculated based on the mandated maximum class size and staffing ratio, which is 15 students with one lead teacher and one paraprofessional. The total cost includes approximately $7M for teacher incentive plan and $65M for salary increase for CBO teachers and administrators at an annual increase rate of 15% over the next three years.

This option would increase 3K slots at community-based organization by 7086 slots. The figure is based on average utilization percentage at CBOs, which is 75% in 2017 (ACS, 2017). To achieve full utilization at CBOs, there are about 7086 slots available to enroll 3K children over the next three years. The figure is based on the assumption that equal pay alone would retain current teachers and entice new Pre-K teachers with similar credentials as Pre-K teachers at DOE. And the improvement of teachers' salary would translate into fulfillment of current unutilized capacity.

Given the estimates above, the cost-effectiveness of supporting community-based providers with equal pay is projected to be about $10,218 per additional slot gained.

- **Equity:**

CBOs include providers with EarlyLearn, providers with Dual programs (both EarlyLearn and HeadStart), providers with HeadStart programs, providers with 3K seats only, family-based providers. Except for family-based providers and providers with 3K seats only, the other providers all require income eligibility that target children from low-income family. The score is based on the percentage of low-income children currently enrolled in the community-based providers. A recent study indicated the percentage of children living in poverty at CBOs is about 58% (Reid, et al., 2019). Therefore, the equity score for this option is 0.58. The estimate is biased downward, because the data collected by the survey were based on the free and reduced price lunch forms which not all CBOs submit..

- **Feasibility:**

This option has a medium political feasibility, which equals a score of 2. The pay disparity issue has been around for decades. CBOs and many child advocacy organizations are rallying hard on this issue. Now, the de Blasio administration is in the process of a major restructuring of the Pre-K system in New York. The city has recently transferred the management of EarlyLearn and some HeadStart programs from ACS into DOE, where it will be the same framework as PKA and 3K to some degree. As part of the transition, the pay disparity across the public education system is likely to be corrected by DOE. However, given the budget constrain of 3K, it would not be easy to achieve pay parity within a short time. For feasibility of implementation, it has a score of 3. It can be easily implemented and requires no new programming. The overall score of feasibility is 2.5.

Option 2: Include Family Child Care into the 3K System

- **Cost-effectiveness:**

This option requires about approximately $94M in total over the next three years. To improve the quality at family-based providers to meet the standard similar to 3K, DOE would recruit 100 instructional coordinators and 120 social workers to provide on-site coaching for each provider over six months. Each family-based provider would receive coaching twice per month. The total personnel cost would be about $28M. The total quality improvement cost is about $58M, including stipend for teachers pursuing additional education, reimbursement cost for providers reaching certain quality benchmark. Other cost include renovation and equipment cost, which totals $8M.

This intervention for quality improvement is drawn from an analogous program – LAUP, which is one of the few programs to successfully include family daycares in a public preschool program (Hurley & Butel, 2018). The program provided teacher with intensive on-site coaching for six months and monthly coaching to help providers with business finances, parent engagement, and stipends for teachers pursuing additional education.

The option would increase 3K slots at family-based providers by 14434 over the next three years. The number includes the unutilized slots available at contracted family-based providers and enrollment at newly contracted family-based providers. Currently the utilization rate at contracted family-based providers is about 85%. To achieve full utilization, there are about 1500 slots available. Also there are 3600 licensed family child care providers available, which have not contracted with ACS or DOE yet. It is estimated that there will be 500 new family-based providers to be contracted with DOE per year. By mandate family-based provider can serve up to 12 children, which include no more than 2 infants or toddlers. Therefore, each family-based provider would serve at most 10 3-year-olds. The total slots are calculated based on the discount rate 7%.

Given the estimates above, the cost-effectiveness of including family-based providers into the 3K system is projected to be about $6514 per slot gained.

- **Equity:**

As 3K does not require income eligibility of family, all children who reach 3 years old are eligible to apply for 3K. Theoretically, family child care would reach an equal share of low-income children as their non-poor peers. Yet, traditionally, publicly-funded family child care providers in NYC are either contracted through EearlyLearn or operated via vouchers. Both programs mainly targeted low income children. To include family child care providers into the 3K system means DOE would recruit more family-based child care providers from a much larger world of licensed family child care providers which are not part of EarlyLearn, but who are paid by families themselves. With the inclusion of family child care system, it is likely that family child care would still serve a majority of children from low-income families. I did not have the data for the share of low-income students at family-based providers. The number of 75% is a rough estimate. Therefore, the equity score is projected to be 0.75.

- **Feasibility:**

This option has a high political feasibility, which equals to a score of 3. Revealed in a white paper, NYC DOE is considering to make family child care a part of 3K-for-All program. Family child care has long been the most common form of child care for New York's very youngest and poorest children. Already, DOE has begun intensive collaboration with a group of family child care programs that contract with ACS to provide subsidized child care. As DOE takes over responsibility from ACS for the city's subsidized child care system, it is very likely family child care would become part of the 3K system. In terms of feasibility of implementation, it has a score of 2. Bringing family child care to 3K also means bringing care to the similar standard of 3K, which will be challenging in many of the home care sites which hasn't been well-supported and has very little infrastructure. Enlisting family child care for 3K requires ample support from DOE to create requirements and standards specific to home-based 3K providers along with education and professional development opportunities. The overall feasibility score for this option is 2.5.

Option 3: Integrate voucher child care system into 3K system

- **Cost-effectiveness:**

The total cost for this policy alternative is projected to be $149M over the next three years. The cost includes $83M personnel cost, $58M quality improvement cost, $8M renovation cost, and $234K equipment cost. Similar to Option 2, in order to improve quality at subsidized providers, DOE would recruit 100 instructional coordinators and 120 social workers to provide on-site coaching for each provider twice a month. In addition, a task force will be established to recruit more eligible 3K providers from the large network of registered CBOs and family-based providers to contract with DOE. To achieve pay parity, the increased salary cost is calculated based on the annual increase rate of 15% for the salary of teachers at subsidized providers. Quality improvement cost includes stipend for teachers pursing professional development or higher degree, and reimbursement for providers reaching certain quality benchmark.

This option would increase 3K slots at subsidized providers by 13122 in three years' time. The number includes the available slots at subsidized providers, number of children enrolled at informal providers, and slots at new contracted subsidized providers. The current available slots (8441) are calculated based on the utilization percentage (77%) at subsidized providers (ACS, 2017). The figure includes 1569 children at informal providers, because it is assumed when ACS stops providing

voucher to children eligible for 3K, those children would be enrolled in 3K providers with available slots. The total number also includes 3000 slots provided by new contracted subsidized providers per year. The total number is calculated based on the 7% discount rate.

Given the estimate above, the cost-effectiveness of this option is projected to be $11349 per slot gained.

- **Equity:**

With the integration of subsidized child care providers into the 3K system, low-income children would have greater access to quality child care. The total slots gained include the number of available slots at EarlyLearn (8393), the number of 3-year-olds at informal providers (1569) and number of slots at new contracted providers (3000). The number of low-income children at EarlyLearn providers are added by the number of low-income children at family-based providers and CBOs. Due to the limited data, I use 75% and 58% to calculate the number low-income children at family-based providers and CBOs respectively, which is based on the equity score for Option 1 and Option 2. Therefore, the number of low-income children at family-based EarlyLearn providers is 1025, which is calculated based on the available slots (1367) at family-based providers at the utilization rate of 85% multiplied by 75%. The number of low-income children at CBO providers at EarlyLearn is 4075, which is calculated based on the available slots (7026) at the utilization rate of 75% multiplied by 58%. All the slots at informal providers belong to low-income children who use child care voucher. The number of low-income children at new contracted providers will be 1500 which is calculated on the 50% rate of low-income children, because all 3-year-olds can be enrolled at those slots regardless of income eligibility. The equity score is 0.63, which is calculated by the total number of low-income children (8169) divided by the total slots gained (12962).

- **Feasibility:**

This option has a medium political feasibility, which equals to a score of 2. With the transition of EarlyLearn from ACS to DOE, DOE has already planned to create a unified Pre-K system for children 0-5. However, voucher-based child care still remains within ACS after EarlyLearn's transition to DOE. Currently, there is little political support for the integration of the two systems in the short term. For feasibility of implementation, it has a score of 1. The voucher-based child care providers include a portion of informal child care and the majority of other providers have not

contracted with ACS or DOE. To integrate these two separate systems, DOE needs to set a specific standard for voucher-based providers to align with the 3K requirement. Also, DOE would need to invest a lot on quality improvement through professional development, onsite coaching and monitoring to ensure quality. So the overall feasibility score is 1.5.

Policy Recommendation & Implementation

Given the projected outcomes of each policy option, it is recommended that NYC Mayor's Office pursue Option 2 - include family child care in the 3K system in the short term. Option 1 and Option 3 can also be considered in the long run when there is sufficient funding.

- **Rationale**

Including family-based child care into the 3K system provides multiple advantages over other alternatives. It offers a comparatively more cost-effective approach to scale 3K within a short period of time. Before the 3K initiative, it is already one of the most common forms of child care for many low-income families in NYC. Home-based child care provides a more flexible and affordable option for families compared to center-based or school-based providers. Currently, there are over 13,000 family-based providers receiving subsidy and more than 5000 licensed providers in NYC, which contain huge potential to bring 3K to full implementation. To expand the capacity of 3K, DOE could make use of the existing resources and bring family child care to scale. To bring family child care into the 3K system also means bringing the quality to the same standard of 3K. It requires extensive on-site coaching and tailored quality improvement support to the needs of each provider. The quality improvement is the key for this option, which accounts for a large percentage of the total cost.

The pursuit of collaboration with family-based child care offers both a political feasible and administrative viable option. Before 3K, EarlyLearn has already established some partnership with family-based providers to provider child care for 3- and 4-year-olds to some extent. It offers some kind of professional development and on-site coaching and monitoring, though on a less frequent base as compared to the successful case study of LAUP. Currently, DOE is considering to utilize home-based providers for the expansion of 3K. Starting in 2020-21, District 27 will be the first to

offer home-based 3K. It is highly likely that family-based child care would be rollout out on a larger scale and become an integral part of 3K if DOE can successfully align the quality of family child care with the standard of 3K. To do this, it requires DOE to learn from the experience from EarlyLearn's cooperation with family child care. It is important that DOE provides effective support for family child care in the way that truly improve their quality instead of burdening them with more requirement and paperwork.

It is also an equitable option that enables more low-income children to access quality Pre-K education. Compared to center- and school-based providers, home-based providers traditionally serve the youngest and poorest children in NYC. They are conveniently located in the neighborhoods that are concentrated with families living in poverty. In NYC, most of family-based child care are run by women of ethnic minority who share the same language and culture with the family, which is an advantage many formal arrangements do not possess. Also, family-based providers usually offer more flexible and longer hours of care, which most low-income parents or working parents need. They provide a close and homie environment that many minority families prefer.

- **Implementation**

To bring family child care to scale with 3K, DOE needs to craft a set of requirements and standard that align with 3K and provide relationship-based support for quality improvement. DOE needs to recognize the immense potential home-based providers prosses as well as the deep-rooted child-rearing practices that are different from center- and school-based providers. It is important that customized support and instruction are designed that tailored to the needs of each provider.

The following steps can be considered for quality improvement:

1. Design an evidence-based curricula that takes the special characteristics of family-based child care into consideration. On one hand, the scientifically tested curricula should align the core standard of 3K. One the other hand, it should also tailor to the reality of home-based child care, where a teacher needs to care for a mixed group of children of different age.

2. Use the family child care network as a more effective approach to improve quality. DOE could provide coaching and training to network employees, who can be the intermediate to work with affiliated family providers. To do this, DOE should provide child care networks with sufficient funding and resources. Clear guidance should be made in order for networks to ensure what kind of quality improvement is expected.

3. DOE can implement a tiered payment system which reimburses provider achieving certain quality benchmark. The tiered payment is often used as an effective measure to incentivize providers to reach high quality standard. For example, family child care network can give a higher subsidy rate per child to provider that hires a teacher with a bachelor degree. Like the LAUP program, DOE can also devise a 5-point-scale which sets the standard of quality. Provider that reaches a certain point will be reimbursed with a higher rate.

4. Intensive on-site coaching and monitoring should be implemented. It is important to provide frequent and intensive support in order to ensure effective intervention. Family child care network staff would be assigned to visit each provider on weekly bases to provide relationship-based support that fosters interactive communication and trusting relationship. Coaching should be conducted in an interactive approach that listens to the feedback of family-based providers instead of a didactic approach.

- **Additional consideration**

Including family-based child care in the 3K is comparatively most viable given the budget constraint in the current context, but it should be noted that the policy options mentioned above are not mutually exclusive. Achieving pay parity by establishing a unified payment system is also politically feasible. The problem of pay disparity has been around for a long time. It could pose potential threat for the expansion of universal Pre-K education if it is not taken seriously. To create a truly unified system, DOE needs to integrate the fragmented parts of Pre-K system by unifying subsidized programs with universal Pre-K programs. The structural divide between different types of Pre-K arrangements pose great obstacles for NYC to achieve universal, equitable access to quality Pre-K education. Therefore, it is important to create a unified system through integration of subsidized programs with PKA and 3K and pay parity for Pre-K teachers at all settings in the long term.

Limitation

The outcome of cost-effectiveness analysis should be drawn with caution, as certain part of data analysis is based on subjective estimation due to the limitation of data. I did not find any data on the number of teachers at CBOs or subsidized providers. The calculation is based on the minimum number of required teacher for each class given the number of students enrolled. The number is likely to be underestimated. In addition, data analysis might be limited by the years of available data. Certain data, such as the capacity utilization rate are only available for year 2017. This limits the accuracy of some part of the analysis. The equity score is either based on the current share of low-income children or rough estimation. It is likely that the estimated share does not exactly reflect the actual number of low-income children affected by a certain policy. In terms of the effectiveness of each policy, estimation is largely based on the utilization rate of current capacity. It does not account for the factor that capacity would grow given the intervention would incentivize providers to increase slots. Finally, there is limited time and data to conduct a more detailed cost analysis, which might result in possibility for error.

Appendices

Appendix A: NYC Pre-K Education System

Figure1: NYC Birth-to-Five Early Child Care System

	Subsidized	Universal
Managed by DOE	• ACS EarlyLearn • NYC Head Start	• UPK • 3K-for-All
Managed by ACS	• Voucher	

Figure 2: NYC Publicly Funded Child Care Providers by Type

	Contracted	Un-contracted
School-based	• District Schools including public, charter, special education schools and standalone Pre-K Centers	
Center-based	• Currently administered through ACS (EarlyLearn, Headstart and Dual) • Currently contracted with DOE to provide UPK and 3K-for-All	• Centers where families redeem child care vouchers
Family-based	• Licensed family-based child care providers contracted through ACS EarlyLearn • Licensed family-based child care providers where family redeem child care vouchers	
Informal		• Neighbor, family care where families redeem child care vouchers and does not include other informal arrangements

(Source: Citizens' Committee for Children)

Appendix B: Assumption and Cost-effective Analysis

The tables below show the cost-effective analysis for each policy option together with the attached Excel spreadsheet displaying the detailed analysis of cost-effectiveness.

Assumption

Major Assumption	
Discount rate	7%
Annual slots gained - Establish a unified compensation system for teachersat all 3K providers	2700
Annual slots gained - Include family-based providers into the 3K system	5500
Annual slots gained - Integrate subsidized child care system with 3K system	5000

Option 1: Establish a Unified Compensation System for teacher at all 3K Providers

Costs					
Equal pay	2019	2020	2021	2022	NPV
Year	0	1	2	3	
Increased administrator salary	$60,943,232	65499735.33	65791506.4	61761287	193052528.7
Original administrator salary	$60,943,232	56956291.59	53230179.1	49747830.89	159934301.5
Increased budget for achieving pay parity for administrators					33118227.14
Increased teacher salary	$83,128,640.00	89343865	83498939.6	78036392.19	$250,879,197
Original teacher salary	$83,128,640.00	77690318	72607774	67857732	$218,155,824
Increased budget for achieving pay parity for teachers					$32,723,374
Teacher incentive plan	$2,500,000	$2,336,449	$2,183,597	$2,040,745	$6,560,790
Total cost					**$72,402,391**

Option 2: Include Family-Based into the 3K System

Costs					
Family-based providers	2019	2020	2021	2022	NPV
Year	0	1	2	3	
Personnel Total					28176756.5
Instructional coordinator	3744000	3499065.42	3270154.6	3056219.251	9825439.27
Social worker	4492800	4198878.5	3924185.52	3667463.101	11790527.1
Teacher incentive plan	$2,500,000	2336448.6	2183596.82	2040744.692	6560790.11
Quality Improvement Total					57734953
Stipend	2000000	1869158.88	1746877.46	1632595.754	5248632.09
Reimbusement for providers	20,000,000	18691588.8	17468774.6	16325957.54	52486320.9
Facilities Total					7872948.13
Renovation	3,000,000	2803738.32	2620316.18	2448893.631	7872948.13
Equipment Total					236188.444
Teaching materials	90,000	84112.1495	78609.4855	73466.80892	236188.444
Total cost					**94020846**

Option 3: Integrate Subsidized Child Care System with 3K System

Costs					
Include voucher system	2019	2020	2021	2022	
Year	0	1	2	3	NPV
Personnel Total					**83075002.3**
Salary increase	$23,131,068	21617820.6	20203570.6	18881841.7	60703232.9
Instructional coordinator	3744000	3499065.42	3270154.6	3056219.25	9825439.27
Social worker	4492800	4198878.5	3924185.52	3667463.1	11790527.1
Task force	288000	269158.879	251550.354	235093.789	755803.021
Quality Improvement Total					**57734953**
Stipend	2000000	1869158.88	1746877.46	1632595.75	5248632.09
Reimbusement for quality improvement	20000000	18691588.8	17468774.6	16325957.5	52486320.9
Facilities Total					**7872948.13**
Renovation	3000000	2803738.32	2620316.18	2448893.63	7872948.13
Equipment Total					**236188.444**
Teaching materials	90000	84112.1495	78609.4855	73466.8089	236188.444
Total cost					**148919092**

Cost-Effectiveness

Total Net Present Value of Costs		
Establish a unified compensation system for teachersat all 3K providers	$	72,402,391
Include family-based providers into the 3K system	$	94,020,846
Integrate subsidized child care system with 3K systen	$	148,919,092
Total Net Present Value of Slots Gained		
Establish a unified compensation system for teachersat all 3K providers		7086
Include family-based providers into the 3K system		14434
Integrate subsidized child care system with 3K systen		13122
Cost per Slot Gained for 3K-for-All		
Establish a unified compensation system for teachersat all 3K providers	$	10,218
Include family-based providers into the 3K system	$	6,514
Integrate subsidized child care system with 3K systen	$	11,349

Reference

Barnett, W. S. (1995). Long-term effects of early childhood programs on cognitive and school outcomes. *The Future of Children*, 5(3), 25-50.

Bassok, Daphna, Maria Fitzpatrick, and Susanna Loeb. "Does State Preschool Crowd-out Private Provision? The Impact of Universal Preschool on the Childcare Sector in Oklahoma and Georgia." Journal of Urban Economics 83 (September 1, 2014): 18–33. https://doi.org/10.1016/j.jue.2014.07.001.

Besharov, C.J., & Call, D.M. (2008). The new kindergarten: The case for universal pre-K isn't as strong as it seems. The Wilson Quarterly, 28-35

Blair, Clancy, and C. Cybele Raver. "Poverty, Stress, and Brain Development: New Directions for Prevention and Intervention." Academic Pediatrics 16, no. 3 Suppl (April 2016): S30–36. https://doi.org/10.1016/j.acap.2016.01.010.

Bromer, Juliet, Lisa A. McCabe, and Toni Porter. "Special Section on Understanding and Improving Quality in Family Child Care: Introduction and Commentary." Early Childhood Research Quarterly 28, no. 4 (October 1, 2013): 875–78. https://doi.org/10.1016/j.ecresq.2013.08.003.

Brooks-Gunn, J. (2003). Do you believe in magic?: What we can expect from early childhood intervention programs. *Social Policy Report,* 17, 3-14.

Fuller, and Castillo. (2015). "Expanding Preschool in New York City-Lifting Poor Children or Middle Families?" University of California-Berkeley. Retrieved from https://gse.berkeley.edu/file/1344/download?token=2Ujy2QWP

Chaudry, Ajay. Cradle to Kindergarten : A New Plan to Combat Inequality /, n.d.

Child Care Aware. Parents and the High Cost of Child Care. (2017). Retrieved from https://www.childcarewestchester.org/pdf/CCA_High_Cost_Report_2017.pdf

Dotterer, A. M., Burchinal, M., Bryant, D., Early, D., & Pianta, R. (2013). Universal and targeted pre-kindergarten programmes: a comparison of classroom charactertistics and child outcomes. Early Child Development and Care. Advaned online publication. http://dx.doi.org/10.1080/03004430.2012.698388

Duncan, Greg J., Jens Ludwig, and Katherine A. Magnuson. "Reducing Poverty through Preschool Interventions." The Future of Children 17, no. 2 (2007): 143–60.

Felipe de la Hoz, UPK was a big success. 3K for All won't be so easy, City & State New York, Mar. 19, 2018. Retrieved from https://www.cityandstateny.com/articles/policy/education/upk-was-big-success-3k-all-wont-be-so-easy.html

Finn, C. (2009), The preschool picture. Education Next, 9(4), 13-19

Frede, E. C. (1995). The role of program quality in producing early childhood program benefits. *The Future of Children,* 5, 115-132.

Gormley, William T., and Deborah Phillips. "The Effects of Universal Pre-K in Oklahoma: Research Highlights and Policy Implications." *Policy Studies Journal* 33, no. 1 (2005): 65–82. https://doi.org/10.1111/j.1541-0072.2005.00092.x.

Guinn, M. (2017). "Universal Pre-K is Hard to Find and Harder to fund." Governing. Retrieved from https://www.governing.com/topics/education/gov-universal-pre-kindergarten.html

Haskins, R. (1989). Beyond metaphor: The efficacy of early childhood education. American Psychologist, 44, 274-282.

Hipp, M. and Warner, M. E. (2008), Market forces for the unemployed? Training vouchers in Germany and the U.S., Social Policy and Administration, 42: 77–101.

Huizen, Thomas van, and Janneke Plantenga. "Do Children Benefit from Universal Early Childhood Education and Care? A Meta-Analysis of Evidence from Natural Experiments." Economics of Education Review 66 (October 1, 2018): 206–22. https://doi.org/10.1016/j.econedurev.2018.08.001.

Hurley, K. & Chen, J. Z. (2016). Bringing it All Home, Problems and Possibilities Facing New York City's Family Child Care. Center for New York City Affairs at the New School. Retrieved from https://static1.squarespace.com/static/53ee4f0be4b015b9c3690d84/t/577bdc5fbebafbe36df4e7a4/1467735136713/Bringing+It+All+Home_FINAL_.pdf

Hurley, K. & Butel, A. (2018). Free Preschool, Coming to an Apartment Near You, What Family Child Care Could Mean for 3K. Retrieved from

https://static1.squarespace.com/static/53ee4f0be4b015b9c3690d84/t/5c128c31c2241b1194b3c5b3/1544719413071/Free_Preschool_Coming_to_an_Apartment_Near_You.pdf

Kagan, S. L. (2009). American early childhood education: Preventing or perpetuating inequity? New York: Teachers College at Columbia University.

Kagan, S.L. & Friedlander, J. (2011). Universal Plus: What's Worth Doing is Worth Doing Well. In E. Zigler & W. S. Gilliam (Eds.), The Pre-K Debates: Current Controversies & Issues (42-47). Baltimore: Paul H. Brookes Publishing Co.

Kim, J., & Fram, M. S. (2009). Profiles of choice: Parents' patterns of priority in child care decision making. Early Childhood Research Quarterly, 24, 77–91.

Layzer, J. (in press). Project Upgrade in Miami-Dade County, Florida. Cambridge, MA: Abt Associates.

Lee, V. E. & Burkam, D. T. (2002). Inequality at the starting gate: Social background differences in achievement as children begin school. Washington, DC: Economic Policy Institute.

Lipsey, M. W., Farran, D. C., & Durkin, K. (2018). Effects of the Tennessee Prekindergarten Program on children's achievement and behavior through third grade. *Early Childhood Research Quarterly*. https://doi.org/10.1016/j.ecresq.2018.03.005

Malakoff, M. (2006). The Need for Universal Preschool Access for Children Not Living in Poverty. In E. Zigler & S. M. Jones (Eds.), A Vision for Universal Preschool Education (89-103). New York: Cambridge University Press.

National Research Council. (2000). From neurons to neighborhoods: The science of early childhood development. Washington, DC: National Academy Press.

National Research Council. (2001). Eager to learn: Educating our preschoolers. Washington, DC: National Academy Press.

Helburn, S. W. and Bergmann, B. R. (2002), America's child care problem: the way out, New York, NY: Palgrave for St Martin's Press.

New York City Independent Budget Office. (2017). A System in Flux: New Programs, Administrative Changes Create Challenges for New York City's Traditional Subsidized Child

Care Programs. Retrieved from https://ibo.nyc.ny.us/iboreports/a-system-in-flux-new-programs-administrative-changes-create-challenges-for-new-york-citys-traditional-subsidized-child-care-programs.pdf

NICHD Early Child Care Research Network and Greg J. Duncan. 2003. "Modeling the Impacts of Child Care Quality on Children's Preschool Cognitive Development." *Child Development* 74(5): 1454-75.

Policy Analysis for California Education (PACE). (2002). Promoting school readiness: The role of the Parents as Teachers Program. *NHSA Dialog, 6,* 71-86

T. Porter, D. Paulsell, P. Del Grosso, S. Avellar, R. Hass, L. Vuong. (2010). A review of the literature on home-based child care: Implications for future directions. Mathematica Policy Research, Princeton, NJ.

Potter, H. The Benefits of Universal Access in Pre-K and "3-K for All", The Century Foundation, April 28, 2017, https://tcf.org/content/commentary/benefits-universal-access-pre-k-3-k/?session=1

Ramey, C.T., S.L, & Stokes, B.R. (2009). Research evidence about program dosge and student achievement: effective public kindergarten programs in Maryland and Louisiana. In R. Pianta & C. Howes (Eds), *The promise of Pre-K* (pp.79-105). Baltimore: Brooks Publishing.

Reid, Jeanne L., Samantha A. Melvin, Sharon Lynn Kagan, and Jeanne Brooks-Gunn. "Building a Unified System for Universal Pre-K: The Case of New York City." Children and Youth Services Review 100 (May 2019): 191–205. https://doi.org/10.1016/j.childyouth.2019.02.030.

Reynolds, A.J. (1995). One year of preschool or two: Does it matter? *Early Childhood Research Quarterly, 10,* 1-31

Shapiro, E. (2019, Jan 1). Bright Spot for N.Y.'s Struggling Schools: Pre-K. Retrieved from *https://www.nytimes.com/2019/01/01/nyregion/deblasio-pre-k-program-nyc.html*

Taylor, K. (2017, May 10). Is "3-K for All" Good for All? De Blasio's Preschool Plan Troubles Some. The New York Times. Retrieved from https://www.nytimes.com/2017/05/10/nyregion/free-preschool-deblasio-new-york-city.html

Warner, Mildred E., and Raymond H. J. M. Gradus. "The Consequences of Implementing a Child Care Voucher Scheme: Evidence from Australia, the Netherlands and the USA." Social Policy & Administration 45, no. 5 (2011): 569–92. https://doi.org/10.1111/j.1467-9515.2011.00787.x.

Westat & Metis Associates. (n.d.). Evaluation of the New York City Pre-K for All Initiative, 2014-15 Implementation Study Report: Curriculum and Instruction. Retrieved from https://www1.nyc.gov/assets/opportunity/pdf/Westat_Metis_Branch_PreK_Study_Implementation_Report_Curriculum_and_Instruction_Final.pdf

Wheeler, C.M. (2002). A longitudinal investigation of preschoolers' Head Start experience and subsequent school readiness (Doctoral dissertation, Yale University). Dissertation Abstracts International, 63(03),1592B.

Yoshikawa, H. (1995). Long-term effects of early childhood programs on social outcomes and delinquency. *The Future of Children*, 5, 51-75.

Zigler, Edward. A Vision for Universal Preschool Education /. Cambridge ; Cambridge University Press, 2006.

Zigler, Edward, Walter S. Gilliam, and W. Steven Barnett, eds. The Pre-K Debates: Current Controversies and Issues. Baltimore, Md: Paul H. Brookes Pub. Co, 2011.