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| Costs and Benefits of VPK Expansion in Florida  Applied Economics Research Group |
| |  |  |  | | --- | --- | --- | | Lindsey Kirkland | Duncan Mugford | Julia Prat | |

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The students are “hired” as associates in a fictitious consulting company called Applied Economics Research Group (AER Group). The consulting company is **fictitious** and is only mentioned to enhance the realism of the project.

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***Costs & Benefits of Florida VPK Expansion***

**Executive Summary**



***Background:***

In 2002, Florida constituents voted to approve the Florida Universal Pre-Kindergarten Amendment, requiring the establishment of free and universal pre-kindergarten for every four-year-old child in the state. When the program debuted in 2005, it was one of the first states to enact a free program without any qualifications, and is active in all 67 Florida counties. After nearly two decades of development, the Voluntary Pre-Kindergarten (VPK) program offers families the choice of 540 hours of free care during the school year or 300 hours during the summer term, and has served more than 2.5 million children statewide. Through a cost-benefit analysis, AERG examines Florida’s VPK program to determine the impact of expanding it to three-year-old children, and provides recommendations for future program changes.

***Methodology:***

AERG will be using a cost-benefit approach as our main analysis in determining whether Florida should expand their VPK program to three-year-olds. Florida’s Department of Early Learning, the organization overseeing the VPK program, receives a portion of its funding from federally supported programs such as Headstart and the Preschool Development Birth through Five Renewal Grant (PDG-R). However, for this analysis, our only considerations are the costs to the state of Florida, since that is the entity funding VPK.

Diagram

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***Costs:***

Figure 1

For calculating the costs of the expansion to the state of Florida, we find both direct costs (paid directly to childcare facilities for care services) and administrative costs (overhead cost and salaries for program managers). Our costs calculation flowchart, *Figure 1*, can be found on the right.

For the direct costs, we begin by multiplying the estimated percentage of participating three-year-olds by Florida’s three-year-old population size in order to calculate the estimated number of children participating. We take this number and multiply it by Florida’s current VPK cost per child. For the indirect costs, AERG first finds the ratio of administrative staff to children enrolled in VPK. Next, we divide our estimated proportion participating in VPK by the ratio of VPK administrators to find the number of new administrator jobs needed. Finally, we multiply the added number by the current average administration salary to find the indirect, administrative costs.

***Benefits:***

Diagram

Description automatically generatedThere are many potential benefits to expanding Florida's existing VPK program. Many of these benefits are secondary, and therefore harder to quantify, such as a child’s improved social skills, or increased parental labor force participation rate. While these are important and are discussed in more detail throughout the paper, the most directly quantifiable benefit is reduced child care expenses.

Figure 2

To calculate the money that would be saved by families if the expansion were to take place, AERG finds the number of families that have a three-year-old in their home and also paid for childcare in the past year. Taking this number, multiplying it by the average per hour cost of childcare, and multiplying by the number of VPK hours provided by the state (540 for the school year and 300 for the summer) gives the average benefit of expansion to families within the state. Our benefits calculation flowchart, *Figure 2*, can be found on the right.

***Results:***

AERG finds the total costs of Florida VPK expansion to be approximately $146.5 million dollars, and the total potential benefits to be approximately $146 million, with costs outweighing the benefits by $450,000. However, with further examination of these numbers, we found that **the average cost per child added is $2,306 while the average per child savings per household is $4,312, meaning there is a benefit of just over $2,000 for every child added to the pre-k program.** We then find that an addition of only 225 three-year-olds, or a 0.15% increase in participation from the three-year-olds in the state, causes the benefits to outweigh the costs. The childcare expenses saved by eligible families, in tandem with the academic and social benefits of VPK, supports the cogency of Florida offering universal child care to three-year-olds.

**Introduction**

In this paper, AERG will examine the voluntary prekindergarten program (VPK) in Florida. Introduced in 2005, this program provides all four-year-olds within the state of Florida the ability to attend either 540 hours of free care during the school year or 300 hours during the summer term. In this paper, we analyze the impact of VPK expansion to three-year-olds within the state of Florida. The overall purpose of this report is to conduct a cost and benefit analysis on said expansion.

**Background of VPK**

**Background**

After passing a statewide vote in 2002, Florida’s Voluntary Pre-kindergarten (VPK) program was enacted in 2005, offering free early childhood education to families of four-year-olds regardless of family background or income. Florida was one of the first states to enact a free program without any income qualifications. The program’s purpose is to provide an educational foundation for students entering kindergarten and to increase academic readiness rates. Florida also emphasizes offering flexibility in provider type. The program is active in all 67 counties in the state.

Parents can enroll their four-year-old children in VPK and choose a public, private, or specialized preschool provider for their child. Once enrolled, children can either attend VPK during the school year (540 hours) or the summer (300 hours). Children can only attend preschool once; if their birthday does not fall within the February 2nd to September 1st range of admission, parents can opt to enroll their child when they turn five. The parameters of the program differ for children enrolled in SIS\*.

In the 2019 - 2020 academic year, the Florida Division of Early Learning reported that 71 percent of four-year-olds were enrolled in the program[[1]](#footnote-1), totaling 171,199 students in 6,501 private and public VPK providers. A primary purpose of Florida offering VPK funding to various providers is to offer parents flexibility in choosing childcare. The access offered by the program has allowed large enrollment numbers and lessened the childcare burden faced by many families.

VPK providers can design their own curriculum in accordance with the guidelines set by the Division of Early Learning. “Each VPK provider's curriculum must be developmentally appropriate, designed to prepare a student for early literacy, enhance age-appropriate student progress in attaining state-adopted performance standards, and prepare students to be ready for kindergarten based on the statewide kindergarten screening as described in Section 1002.67(2)(b), Florida Statutes[[2]](#footnote-2).” If enough students fail to achieve certain reading readiness scores, VPK providers are placed on probation and must follow a curriculum assigned by the state.

**Budget**

The state’s budget for VPK varies from year to year. In 2019 - 2020, the program received $402 million in funding; allocating approximately $2,250 per student in 2019 dollars[[3]](#footnote-3). This level of funding was consistent over the past ten years of the program. However, with the COVID-19 pandemic beginning during the 2019-2020 school year, both funding and enrollment levels dropped drastically. In 2021-2022, the program expended $302 million in state funding[[4]](#footnote-4), allocating $2,122 for the VPK Summer program and $2,486 for the VPK School-Year program[[5]](#footnote-5).

For the 2021 - 2022 school year, Florida spent just over $302 million for the 136,000 children enrolled in Florida’s Prekindergarten programs. This budget equates to $2,222 per child per year. For comparison, the District of Columbia, the highest-funded program in the United States, spent $19,228 per child for the 2021 school year. DC also has the highest participation and availability, already offering VPK to three-year-olds. In 2020, DC reported an enrollment rate of 73% for three-year-olds and 84% for four-year-olds.

**Quality Benchmarks**

It is important to look at the quality benchmarks when conducting our cost/benefit analysis. This is because two of the benchmarks, teacher qualifications and degree requirement, both have a financial effect. They potentially impact the labor force of teachers which may in return require a higher amount of VPK funding. Furthermore, it can be costly for a state to improve quality to meet more benchmarks. If we decide that higher quality has a major impact on VPK benefits, it may alter the scope of an expansion. Ultimately, we go over the quality benchmarks to decide if an improvement of quality should be considered in possible expansion of VPK.

Although Florida’s VPK program has granted access to childcare many families would otherwise be unable to afford, the program often faces criticism for its lower quality and funding when compared to other states. Because Florida allows providers to choose and create their own curriculum, many quality standards are not consistently met. Florida only meets two out of ten quality benchmarks set by The National Institute for Early Education Research (NIEER), a nonpartisan organization that provides research-based analysis for early childhood education[[6]](#footnote-6). Of the 50 states and the District of Columbia, there are currently 45 prekindergarten programs in place. As of 2022, 44 states and DC have programs, excluding Idaho, Indiana, Montana, New Hampshire, South Dakota, and Wyoming. According to NIEER, Florida ranks 44 in terms of “resources based on all reported spending” and meets only two of the ten quality standards recommended by the organization. All of the benchmarks can be found in *Figure 3* below. The green circles represent the standards that Florida currently meets while the red circles represent the standards that Florida does not currently meet.

Chart, bubble chart

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Figure 3

The NIEER benchmarks were not established to be markers of the highest quality a program can reach. The benchmarks indicate minimum quality standards a VPK program should meet in order to produce large gains in kids’ school readiness and education. As Florida only meets two of these minimum quality benchmarks, it is important to consider whether a funding increase should be utilized for increasing pre-school quality rather than broadly expanding access to three-year-olds. The only benchmarks Florida met during the 2021 - 2022 school year were early learning and development standards and maximum class size. Unlike other states offering VPK, Florida does not require preschool facilitators to hold teaching degrees, assistant teaching degrees, or specialized training certifications. Although this allows for a higher number of eligible preschool facilitators and lowers the wages paid, it is important to consider the impact lack of teacher education has on quality.

**Methodology**

To analyze the impact of a VPK expansion to three-year-olds within the state of Florida, AERG will conduct a state-level cost-benefit analysis. For the cost-benefit analysis, we use census data sourced from the Survey of Income and Program Participation (SIPP), a nationally representative survey that provides comprehensive information on factors including income, employment, and government program participation, from the 2018 - 2019 school year. In addition, we use NIEER data to construct our 3-year-old participation rate.

**COVID-19 Pandemic Impact**

The COVID-19 pandemic has greatly contributed to changes in funding, quality, and participation rates in Florida preschools. According to CDC records, “after detection of cases of COVID-19 in Florida in March 2020, the governor declared a state of emergency on March 9, and all school districts in the state suspended in-person instruction by March 20[[7]](#footnote-7)”. VPK programs that closed during this time “were not required to offer remote learning but could apply to offer a “Flexible Innovative Option” which allowed virtual instruction[[8]](#footnote-8)”.

By using SIPP information from 2018 - 2019, we examine the most recent full year of data available before the impact of COVID-19. The number of children enrolled in the VPK program decreased dramatically during the pandemic, therefore the metrics from this time period will inaccurately capture the costs and benefits of a possible expansion. As COVID cases continue to decrease in this country and the impact of the pandemic continues to lessen, we believe pre-COVID numbers will give the most accurate estimations for the future.

State expenditures for VPK programs in Florida fell from just over $391 million for the 2018 - 2019 school year to around $303 million for the 2020 - 2021 year. Florida also saw a decreased enrollment of over 6,900 children during the 2019 - 2020 school year[[9]](#footnote-9) and of over 30,000 children during the 2020 - 2021 school year[[10]](#footnote-10). However, as both state budget and cost per child have been trending towards pre-covid values, we find more merit in using pre-covid data for our analysis as that is what the future is more likely to mimic.

**Calculated Statistics**

**Number of Three-Year-Olds Participating**

The participating number of three-year-olds proves to be a more complex calculation than other statistics used in our methodology. Crafting this number requires the proportion of three-year-olds participating in comparison to four-year-olds participating, the total Florida population, the percentage of three-year-olds in the population, and the four-year-old participation rate.

The proportion of three-year-olds expected to participate in comparison to four-year-olds takes a few steps to calculate. There is no data for Florida for how many three-year-olds are predicted to participate in a hypothetical VPK expansion, to counter this we look at VPK data among states that have both three-year-olds and four-year-olds participating. Out of 19 states that had reasonable three and four-year-old VPK data for the years 2017 and 2019 ( 2018 was unavailable), we decided to use 4 in particular: Texas, Washington D.C., Vermont, and West Virginia. We chose these 4 states due to their similar rates of four-year-old participation in comparison to Florida’s rate of four-year-old participation. The participation rates are shown below in *Figure 4*.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| VPK Participation rate (3:4 year-olds) | Texas | Vermont | West Virginia | Washington DC |
| 2017 | (7:49) | (60:75) | (5:65) | (66:88) |
| 2019 | (9:49) | (65:78) | (6:59) | (71:87) |

Figure 4

We realize they may not be perfect matches to Florida in terms of every socioeconomic factor, however the variable of interest is VPK participation, so we hone our focus on this. Regardless of other socioeconomic factors, if four-year-old participation rates are similar, they serve as an indicator of what the true proportion of three-year-olds participating in Florida should be. Additionally, we average out the ratio from all 4 states to obtain a better measure for the ratio of Florida’s three-year-old participation to four-year-old participation. The percentage of participation is **0.463**.

The current Florida population is **21,781,128** (obtained from the United States Census Bureau QuickFacts Florida page). The percentage of three-year-olds in the population is found in our census data, simply by looking at the frequency of ages in the Florida population. We find that three-year-olds represent **0.84**% of the population. The four-year-old participation rate is found in VPK reports, with a value of **75%** for the 2018 year (the focus year of most of our values, in order to not have covid data interfering). Finally, we calculate the participation of three-year-olds by multiplying our four-year-old participation rate with our value for the three-year-old participation rate compared to the four-year-old rate. This calculation gives us .463 x 0.75 or **0.34725** for the participation rate of three-year-olds. Next, we multiply the total Florida population by the percentage makeup of three-year-olds to find the total number of three-year-olds: **182,961**. Finally, we multiply the number of three-year-olds by their participation rate for an estimate of **63,533** three-year-olds participating in the VPK program.

**VPK Administrator Wages**

Another variable of complexity is the VPK administrator wages. VPK costs are included in the Division of Early Learning Annual Report. However, in the reports administrative costs include a variety of factors: wages to administrators, legal services, fiscal and budgetary actions, etc. This presents a dilemma as the information in the Early Learning Annual report is simply: ratio of children to VPK staff, number of VPK staff, and total administrative costs. Because the amount of administrative costs that are wages is unclear, we proceed with the assumption that administrative costs will scale linearly with the number of children added to the program. So, to find our administrative wages we divided the total administrative costs of **13,130,142** divided by the number of VPK employees, **92**. This gave us our approximate administrative wage of **$142,718**. Note that the $142k value is based on our assumption that administrative costs scale proportionally, so ‘wage’ here is representative of all different types of administrative costs- not just wages.

**Costs**

There are several important costs to consider when looking at what the state needs to pay. Several direct costs will be wages due to jobs added, as well as the overall cost per child attending the VPK program. The following sections outline all the costs in more detail, and *Figure 5* displays the information visually.

Diagram

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Figure 5

**Costs: State Cost Per Child**

State cost per child is important to consider because, according to the ELA financial reports for VPK, it is the main measure of expenditures by the state for children admitted to the VPK program. Additionally, this number does not change much year to year, even throughout COVID-19. Therefore, it is a consistent measure, even when the number of VPK attendants changes dramatically from something such as COVID-19.

To examine the cost of the expansion, AERG will first calculate the average cost per child to the state. To do so, two values are needed: the number of three-year-olds expected to participate in the VPK program, and state current average cost per child participating in the VPK program. The total number of participating three-year-olds is calculated earlier and found to be 63,533.

The state’s current average cost per child participating in the VPK program is found in the Division of Early Learning report on VPK funding. This number is found to be $2,222.

Now that we have both values, we can calculate the average cost to the state per three-year-old child participating in the VPK program with the following formula:

(Participating three-year-old population) x(Current state cost per child participating)

**63,533 x 2222 = 141,170,326$.**

**Costs: Administrative Costs**

In addition to the direct costs, AERG will also calculate the administrative cost of expanding the program. While the direct costs are made from the state directly to the preschool facilities that offer care to students, administrative costs cover more overhead costs like the salaries and related costs to staff engaged in administering and implementing the VPK programs.

To calculate administrative costs, AERG will first find the ratio of administrative staff to children enrolled in VPK. Next, we will divide the amount of predicted three-year-old children participating in VPK by the ratio of VPK administrators to find the amount of predicted new administrator jobs added. Then we will multiply this number by the wages for VPK administrators to find the total cost to the state of new administrative jobs added.

Our predicted number of participating three-year-olds is the earlier calculated statistic **63,533**. The ratio of VPK administrators to children enrolled in the program is 1 administrator for every 1689 children enrolled. Finally, our average wage of a VPK administrative job is the earlier calculated statistic of **$142,718**.

(Predicted Number of participating 3y/os) x (Ratio of VPK administrators to children enrolled in program) x (Average wage of VPK administrative job)

**63,533 x 142,718 x (1/1,689) =** $**5,368,444**.

For more information on why other types of faculty were not included, see the appendix.

**Costs Case Study 1: Effect of Statewide Pre-K on Child Development**

An American Psychological Association (APA) study was done to try and more accurately assess the effects of statewide pre-kindergarten on early childhood development and found there to be a much smaller impact than other studies have suggested.

The study examines a recent Georgia study that looked at long-term effects of childhood development and found positive effects on elementary school academics for higher-income families and negative effects for low income families. The authors of this paper cautioned that underlying differences in these types of family environments could likely lead to an explanation.

Another study examined was in Boston, where randomization was done with a lottery system of acceptance into the pre-k system. Using instrumental variable analysis, they found no impact of the pre-k system in comparison to private pre-k or even no pre-k at all.

The Head Start program, commonly used in examining the effects of childhood development from pre-k, was also critically analyzed. The authors found that in the only randomized head start survey, the effects of the program were found to be gone by the time the child finished kindergarten. Furthermore, they looked at a Head Start study done with siblings who did or did not attend Head Start. Here, the original analysis attempted to show that adults experienced positive effects from these programs early on in their adult life. However, under closer examination, the authors of the APA paper showed that these effects dissipated when expanding the measurement window. Additionally, they point out that while this sample from 1980 attempted to show positive effects, data from more recent Head Start programs shows mostly negative effects.

Furthermore, the authors show that many state pre-k programs show a focus on “constrained” skills and use those to show a positive effect of their programs. A constrained skill is a skill with a ceiling- it is measurable and has the potential to be mastered. For example, some state pre-k programs show a focus on having children recognize all 26 letters of the alphabet visually and phonetically. While this may push them ahead of their non pre-k counterparts for a moment, at the end of kindergarten students will mostly share the same amount of constrained skills. Unconstrained skills are harder to measure, and therefore are included and measured less by state pre-k curriculums.

The authors then move to discuss the relation of poverty to many pre-k programs. Many pre-k programs are targeted towards low-income communities (Florida’s VPK is a notable exception, being open to all), as the effects of a low income environment can be negative on a child’s developing brain simply due to a difference of available resources. Many studies that look at the effects of pre-k use data samples from programs that already target lower-income communities, making the results of such studies not universally applicable. This is especially important in our cost-benefit analysis as Florida VPK has open eligibility to any income bracket.

Finally, the authors go over how child care providers having large numbers of young children in the same space but not having a trained teacher as the caretaker could lead to negative attentional biases forming in the children. This is important to note because Florida does not currently meet the benchmark for ensuring that VPK providers have caretakers with the proper teaching qualifications and degree.

**Benefits**

In this section, we examine the benefits of expanding Florida's existing VPK program. Many of these benefits are secondary, and therefore harder to quantify. They include gains in a child’s social skills from engaging with their peers, or benefits to parents, especially mothers, who can return to the workforce a year earlier than before.  We can also assume that earlier access for children will have an impact on their future academic achievements and successes. In the following sections, we calculate the amount of money that would be saved by families if VPK were to be expanded to three-year-olds in Florida and examine numerous case studies that discuss benefits harder to quantify. *Figure 6* displays our calculated information visually.

Diagram

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Figure 6

**Benefit: Money Saved to VPK Participating Families**

Money saved to VPK participating families is a direct benefit to them created by the implementation of the program. While this is a transfer of funds to citizens, this is considered a benefit as the state is designed to benefit its citizens.

To calculate money saved to families participating in the VPK family, several numbers are first calculated. The first is based on the SIPP data variable “EPAY”. The EPAY variable tracks whether or not a household family has spent money on childcare in a given survey year. In Stata, we limit the EPAY variable to only look at the households in the sample that have three-year-old children (as these are the only households in the sample eligible for the VPK expansion). Then, we find the percentage of EPAY “yes” respondents out of our VPK eligible households, which is roughly **60%**.

Next, we require the total number of households that are eligible for VPK in Florida. To find this we multiply the percentage of all households that are eligible for VPK: 1.23%, (obtained in our SIPP data, details in appendix) by the total number of households in Florida which is found to be 7,931,313 according to the census bureau. This provides a total number of VPK eligible households of **97,555**. Additionally, we use our 3-year-old participation rate in conjunction with the number of eligible households. We are assuming that out of the three-year-old population that may participate, there are not multiple three-year-olds living in the same household. There are exceptions to this, however, as the majority of households with three-year-olds will not have more than one given that the rate of twin births is approximately 3% (triplet/quadruplet birth rates are so low they don’t need consideration). Our three-year-old participation rate is **0.34275**.

The next number needed is the number of VPK hours, which are the 540- and 300-hour school year/summer term numbers. Given that most families that participate in VPK do so in the regular school year, and the summer participation is only about 5% of participating children, we decide to simply use the school year hours for this calculation.

Finally, we find the average cost to the household per hour of childcare.

To calculate this value, we use the United States Census Bureau QuickFacts sheet which gives statistics on wage earnings of childcare providers. The mean wage for a childcare provider is **$13.31** an hour. There is the possibility of wage earnings of the provider not directly equaling the cost of childcare in cases with large care providers. However, given that not every childcare option being pursued by parents is part of a provider - and many are simply individuals working where the wages do directly show the cost of care, we decide to use the 13.31 as an approximate estimate of hourly child care overall.

Now, we use the following formula:

(% EPAY yes respondents) x (Total number VPK eligible households) x (predicted three-year-old participation rate) x (Average cost of childcare per hour) x (VPK hours)

0.6 x 97,555 x .34725 x 13.31 x 540 = **$146,088,104**

Note: This is a rough estimate of total potential money saved to households participating in the expansion that were *already* participating in the childcare market.

Alternatively, if every available household participated (change 0.34725 to 1) we would get total potential savings as:

0.6 x 97,555 x 13.31 x 540 = **$420,700,084**

Note: It is important to emphasize that this is potential savings for families if *every* VPK eligible household that was already purchasing childcare completely switches and utilizes VPK during the school year. Our $420 million is total potential savings to families, assuming they choose to fully engage with VPK which is the benefit the VPK program is concerned with.

**Benefit: Increase in Women’s Labor Force Participation Rate**

An increase in women’s labor force participation rate due to savings in childcare prices is a direct benefit to the state. It will decrease worker shortages and unemployment while increasing state revenue from income tax.

In “Child Care and the Employment Behavior of Single and Married Mothers”, Kimmel constructs a Childcare Price Elasticity for Employment for both single and married mothers. For single mothers, elasticity is -0.521 and for married mothers -0.309. These numbers were formed through an extensive calculation throughout the paper. One point of concern regarding this paper is that the data used was SIPP data from 1987, meaning it is out of date for our 2018 sample. However, given that women’s labor force participation has only increased over the last few decades, these elasticities should still provide conservative estimates of jobs added. To calculate the number of jobs added with these elasticities the following formula will be used:

(Elasticity) x (Money Saved to families as a percentage of total average childcare cost) x (Affected population)

Note: Due to the nature of money saved being calculated as a potential amount saved due to the inability to acquire individual household level data on how much childcare each family consumes, and through which providers (not all providers are also VPK providers), this estimate is unable to be ascertained. Due to case studies below, as well as the calculated elasticity being negative, we are confident in saying that VPK expansion will increase labor force engagement from mothers, although we are unable to say the exact magnitude of this effect.

**Benefit: Increased Cognitive and Character Development Impacts Future Academic Success**

There is an abundance of literature that studies the impact of early education on future academic success in children. Early education is imperative in preparing children for K-12, allowing them to gain foundational skills during their developmental years. The most well-known early education study is the Perry Preschool study, which followed children from their early education for 35 years. James Heckman, a proponent of Perry Preschool, found that not only does access to pre-kindergarten improve cognitive abilities in children, but character skills as well, leading to high test scores later in life. “Enhanced character skills promote learning that boosts achievement test scores. In fact, 30-40 percent of the variance in achievement test scores across students is due to character skills, not IQ[[11]](#footnote-11)”. Early education programs increase children’s exposure to social situations earlier in life. However, we must explore if that impact is even relevant at such an early age.

Boston, which offers universal preschool to four-year-olds, also funded expansion efforts. Boston officials proposed implementing quality enhancements in public preschool facilities in the 2009 - 2010 school year. These efforts included modifying literature and mathematics curriculum, ensured professional development and classroom coaching for teachers, conducting literacy assessments for children in pre-K through second grade, and pursuing accreditation for preschools involved in the program. These efforts led to a substantial increase in test scores for children in the VPK system and raised the quality ratings for many providers.

Multiple studies have been conducted comparing the effects of low-quality preschools, high-quality preschools, or not attending preschool at all. These studies have found that high-quality preschools are extremely beneficial in increasing test scores, but low-quality preschools provide no increase or change in scores at all. “In England, a study that controlled for background influences showed that, by age 11, children who attended high-quality preschools significantly outperformed those who had not attended preschool on literacy and numeracy tests and that low-quality preschool had no beneficial effect[[12]](#footnote-12).” The research points out that high-quality preschools do have positive outcomes for students but is mixed on whether low-quality preschools have worth for academic development. In Florida’s case, it would be beneficial to conduct a comprehensive review on the lack of quality in preschools and whether that translates to achievement in older children. As the curriculum of each preschool program is determined by the provider, there is little to no consistency in what each provider chooses to teach outside of the minimal standards Florida puts forth. In other states, the curriculum is standardized to ensure that students are receiving the same level of education no matter which type of preschool the child attends. Florida’s VPK program is conducted through both private and public facilities, therefore there are significant deviations in what type of care is being offered to families.

**Benefits Case Study 1: Washington D.C.**

In May 2008, Washington D.C. passed the Pre-K Enhancement and Expansion Amendment Act to expand pre-k services within the District of Columbia to all three and four-year-olds. When it was enacted at the start of the 2009 school year, D.C. elected to fund pre-k programs using the same funding formula as grades K-12, so that providers all operate five days per week for a minimum of 6.5 hours per day and 180 instructional days per year. This means that parents are still responsible for covering aftercare and summer child care, though most schools offer these services for a fee[[13]](#footnote-13). While this is more than double the 15 hours per week of instructional time offered to Florida pre-k students during the school year, it is worth examining the effects that the D.C. expansion had on families in the area to get a better understanding of the secondary benefits of expansion. Specifically, the expansion in D.C. led to higher rates of labor force participation for women with children under 5 years old.

In D.C., 72 percent of all three-year-olds and 89 percent of all 4-year-olds attended pre-k services during the 2018-2019 school year[[14]](#footnote-14). D.C. funding totaled just under $257 million with state spending per child sitting around $18,000 for the 2018-2019 school year[[15]](#footnote-15). For context, D.C. has the highest per child budget in the United States, with the national average expenditure at $5,175 per child[[16]](#footnote-16). Their per child expenditure is also around nine times higher than the $2,200 per child budget of Florida. While this is very different from the pre-k system that Florida currently has, D.C. is a well-established example to examine when looking at the effects that a preschool expansion can have.

Since the program has been in place for over 10 years, there have been many studies looking into its effects. One of the most studied factors is the impact the program has had on the labor force participation rate of women. In the United States, the labor force participation rate is approximately 68 percent for men and 57 percent for women[[17]](#footnote-17). As displayed in *Figure 7*, the labor force participation rate in the United States has been consistent since the 1990s, only changing around three percentage points since then.

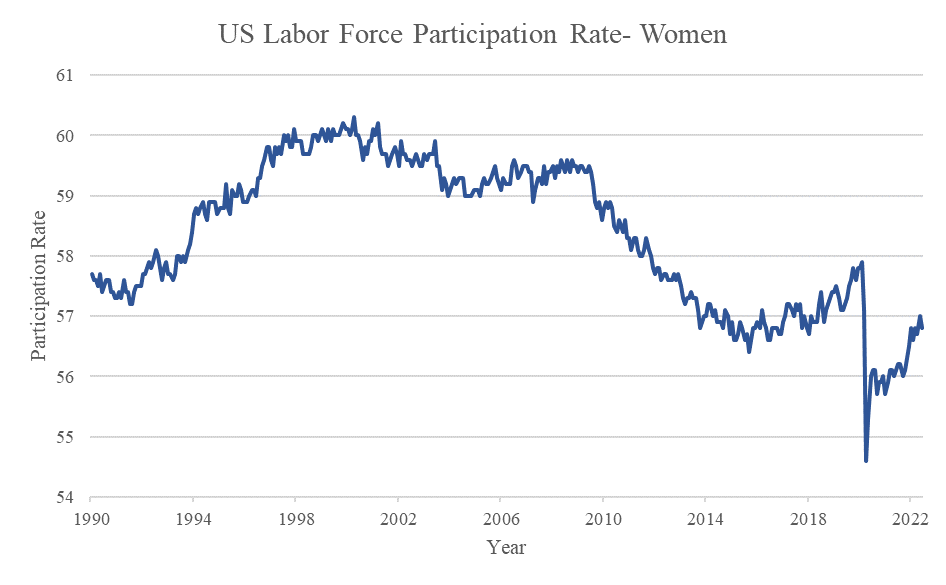


Figure 7

“In recent years, a growing body of research has found evidence to support the claim that much of the remaining labor force participation gap between men and women is connected to motherhood and the gender norms of child care responsibilities.” When couples decide to have children, women are far more likely than men to drop out of the labor force. Increasing access to VPK for younger children will lessen the burden often faced by parents to stop working. Even if a parent chooses to quit their job when a child is born, broadening eligibility for free childcare to three-year-olds will translate to earlier reintroduction to the workforce for these parents.

“Between 2000 and 2008, the city’s maternal labor force participation rate hovered around 65 percent. Following the passage of the Pre-K Act, this rate increased dramatically, reaching 76.4 percent by 2016”.

Further broken down, we can see the increase in participation rate across various subgroups. The passage of a universal pre-k program in D.C. was associated with a break in the stagnation seen in women’s labor force participation rate. Giving mothers access to full day care for their three and four-year-olds closed the gap in D.C. between mothers with children older and younger than five[[18]](#footnote-18). Graphics showing these findings can be found in the appendix.

This case study illustrates the impact that high-quality and universal pre-k can have. D.C. saw an increase of over 10 percentage points for material labor force participation rate, a number that was stagnant for years before the policy. An increase in labor force participation rate also has significant economic implications. More workers leads to a larger tax base and more tax dollars collected by the state. In cases of two-family households, having two parents that are bringing in income can reduce the strain on families and provide a safety net in the case that one parent loses their job.

**Benefits Case Study 2: Perry Preschool Study**

As seen in the Washington D.C. case study, the expansion of a well-funded and comprehensive pre-k program can be beneficial to working parents, and especially to working mothers. The expansion in D.C. allowed more parents to reenter the workforce earlier than before, helping families to bring in more income, and the district to expand its pool of taxpayers.

Pre-k expansions may also positively impact the children who attend the program. In the second case study, we will be examining the Perry Preschool study, a longitudinal study from 1962-1967 that examined the long-term effects of attending preschool for one group of students. While the study was a randomized control study and highly regarded in its field, some disclaimers should be mentioned.

First, the sample size of the study is fairly small and homogeneous. It consists of 128 three and four-year-old African American children from economically disadvantaged households in Ypsilanti, Michigan, a suburb of Ann Arbor. Of the 128, 64 of the children were placed in the treatment group that went to the pre-k program and 64 were in the control group that did not. This is a small sample size and not representative of the entire United States, which could affect the results.

Furthermore, preschool was provided every weekday morning for 2.5 hours in classes taught by certified public school teachers and the Perry project also expanded to resources outside of the classroom. The teachers also provided a weekly 1.5 hour home visit to each family that was designed to involve parents in their child’s education and to help implement the preschool curriculum at home[[19]](#footnote-19).

Noting these caveats, the findings of the Perry Preschool study show significant benefits for children who attend the program over those who did not. The team who originally conducted the study kept in contact with the preschoolers throughout their life to measure the long-term effects of the study. Overall, the researchers found statistically significant differences between factors like education level, economic impacts like income, and crime statistics, among others. For education, “the program group significantly outperformed the no-program group on highest level of schooling completed (65% vs. 45% graduating from regular high school)”[[20]](#footnote-20). The gap between the group widened even more when it came to female students, where there was a difference of 84% vs. 32% between the group that participated and those who did not participate. The group that was selected to participate in the preschool program also had better long-term economic outcomes. For example, at age 40, researchers found that “significantly more of the program group than the no-program group were employed at age 40 (76% vs. 62%).[[21]](#footnote-21)” The program group had a higher mean and median wage than the no-program group. Finally, when they studied crime rates for both groups at age 40, they found that “the program group had significantly fewer lifetime arrests than the no-program group (36% vs. 55% arrested 5 or more times)”[[22]](#footnote-22), and that they had lower arrest rates for all levels of crime, including violent crimes, property crimes, drug crimes, and felonies. They also found that the program group was sentenced to fewer months in prison and served significantly fewer months overall.

Based on all the statistics that they studied, the researchers of the Perry Preschool project also calculated a cost-benefit analysis based on their participants. To find the benefit, they added education savings, taxes on earnings, welfare savings, and crime savings together, and compared that with the average cost per participant. Adjusted to 2021 dollars, the numbers they found are, education savings at $11,492, tax on earnings at $22,153, welfare savings at $4,356, crime savings at $269,826, and average cost per participant at $23,865. *Figure 8* below represents this information visually.

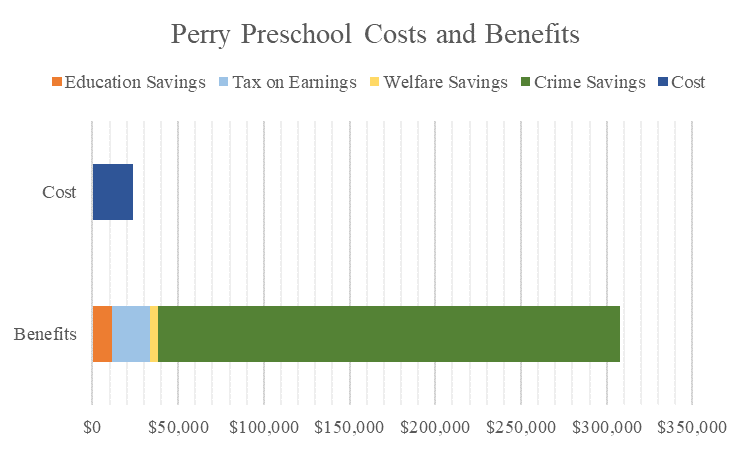


Figure 8

The total benefit, or economic return per participant, adds up to $307,827 in 2021 dollars. This is a huge gain from the $23,865 investment cost per participant. The Perry Preschool study, although it uses data samples unrepresentative of Florida’s population, acts as a baseline and shows significant evidence for the benefit of expanding high-quality pre-k programs for three and four-year-olds. The longitudinal nature of the study gives great evidence that shows the long-term individual benefits for low-income participants in pre-k programs, particularly when it comes to their educational and economic achievements, and reduced crime rate. All of these factors lend themselves to government savings, as they will be able to pay less for criminal enforcement and economic subsidies. Again, it is important to remember that this study comes from a small and homogenous sample size, and more research is likely needed to verify the results of the Perry Preschool study, but this serves as a baseline with promising results for future studies and investments in pre-k education.

**Benefits Case Study 3: Texas**

Finally, we will study the pre-k system in Texas to look into the correlation between children’s participation in pre-k with their educational attainments later in life. There are many similarities between Texas and Florida that make them easy to compare. They have similar population sizes, Texas with just over 28 million and Florida with around 21 million people. Their populations also both reside primarily in a handful of large cities spread throughout the state, but with lots of room for smaller towns that will also need access to universal pre-k services. Both states historically have similar spending habits for their pre-k services. During the last school year, Texas was ranked 31st in terms of state spending on pre-k services while Florida was ranked 41st in per-student spending (NIEER). Texas spent around $687 million on 196,221 children from 2020-2021, or just over $4,500 per child while Florida spent just over $302 million on 136,142 children, around $2,200 per student. The similarities between these two states makes Texas a good proxy for Florida, and by looking at Texas, we can get a better understanding of the potential academic benefits of expanding pre-k in Florida.

However, one distinct difference between the Texas and Florida VPK programs is eligibility. In order for a child to be eligible for Texas VPK, they must meet one of six ‘risk factors.’ The risk factors include receiving free or reduced lunch, homelessness, being in the foster care system, a parent in active military duty, a parent killed or injured in active military duty, and being unable to speak or comprehend English. Contrarily, Florida does not have any eligibility standards as VPK is universally offered to any child in the state. Children eligible for VPK in Texas will have different family backgrounds and upbringings compared to many children in Florida’s program. A child who meets one of the risk factors may have a predisposition to have lower academic achievement or test scores in comparison to a child that does not.

The Texas Pre-K study found multiple distinct trends in children who attended a preschool program that affected their performance in the K-3 years. Children who received early childhood education were far more prepared for a school environment compared to children that did not. “These students have a greater understanding of what school is and what is expected of them, and are more likely to understand healthy social behavior in relation to teachers and other students. In contrast, the students who do not attend Pre-K experience noticeable deficits academically, socially, and environmentally upon entering Kindergarten[[23]](#footnote-23).” Preschool provided a significant social primer for the behavior expected in the classroom.

In addition to the behavioral benefits of VPK, the Texas study outlines the improvement in the academic performance of children. “Students who attend Pre-K in their schools are more likely to be placed in advanced reading groups upon entering Kindergarten and throughout their elementary years. These students are also more likely to recognize high-frequency words and sounds, and have overall higher language and comprehension skills.”

Reading and writing capabilities are much higher for children who attend VPK programs than their peers that had no prior exposure to an academic environment. As this study follows children through VPK and third grade, it is evident that the effects of VPK are long lasting and greatly impact student success.

Texas’s VPK serves as a proxy for the benefits of program expansion in Florida due to the similarities between the states. Even though there are distinct differences between the two states, the similarities in the VPK programs allow us to use Texas as a baseline for observing the possible effects of VPK. The Texas study recounts the beneficial effects of VPK for children entering elementary school, and highlights the behavioral and academic success of students enrolled in such programs. Therefore, we can apply these results as possible outcomes for children in Florida who can attend VPK at an earlier age.

**Results**

With our calculated costs and benefits, we can run our cost-benefit analysis. First, we will look only at direct values. This leaves us with:

**$141,170,326** - Summed state cost per child for children added from expansion

**$5,368,444** - Administrative costs from jobs added

**$146,088,104** - Savings to families with our predicted participation rate

If we sum the total costs and benefits (excluding the potential savings), it shows us that the expansion would be predicted to cause **$450,666** cost to the state overall. These results are summarized in *Figure 9* below.

Diagram

Description automatically generated

Figure 9

However, further examination of this situation is more complex. The average cost per child added to VPK is $**2,306.5**. This number is obtained by adding state cost per child ($2,222) with administrative cost per child ($5,368,444/ 63,533 = 84.5). Conversely, the average savings *per household* was $**4,312**(obtained by dividing total savings to families by the number of predicted VPK participating households: $146,088,104 / (0.34725 x 97,555) ). If the cost and benefit *per child* are added it shows us that there is a benefit of $**2,005.5** per child added to the VPK program.

If we divide the earlier total cost/benefit difference by this number we find that if **225** more children are added then the VPK program would be predicted to be a net benefit for the state from a monetary standpoint. Given that our current participation rate of 0.34725 for three-year-olds predicts a total number of 63,533 children participating, adding 225 more children would only require raising the participation rate to 0.34847, a mere 0.15% increase in participation!

A 0.15% increase in participation rate may not require any alteration from the state, depending on how well our three-year-old participation rate value was calculated. The states of Texas, Vermont, West Virginia, and Washington DC were used as states through which the three-year-old: four-year-old participation rate comparison was formed. We weighted all states equally in this calculation, even though the states may have different quality of education, population density spreads over rural areas, and different overall population densities of children. Perfectly weighting the other states to compare to Florida is not feasible in the scope of this project, we are taking this even weighting as an approximate estimate for enrollment rate.

Furthermore, this does not take into account any of the abstract benefits of expanding VPK. As discussed in our benefits section, there are also benefits to the state that we are unable to directly calculate. Developmental impact effects on children seem to suggest that VPK programs have a small benefit on their futures. Allowing enrollment of three-year-olds increases the number of parents that can return to the labor force earlier and decreases the cost of childcare that would be spent by families. Earlier access to education provides the opportunity for children to become accustomed to a school environment, while increasing reading and mathematics readiness scores.

However, the evidence suggests that such exposure at an earlier age is most effective within high-quality preschools. As Florida’s preschool program does not meet most benchmarks, it might be beneficial for the state to reexamine its approach to quality assurance.

**Policy Proposals**

Finally, we will examine four potential policy implementations that Florida could take in regards to VPK expansion. Based on the research, AERG will then recommend one of the policies. The first option that Florida has is to make no change to their current VPK system by not expanding the program to include three-year-olds. Second, Florida could expand their program to include three-year-olds, but not change anything to improve quality benchmarks, like the number of staff or teacher degree requirements. This would be the cheapest way to expand the program. Third, Florida could choose not to expand their program to three-year-olds, and instead focus on meeting more quality benchmarks. The state currently only meets two of the ten benchmarks set by NIEER, and having a higher quality pre-k program can improve the experience for the children who are already in the program. Finally, Florida can choose to not only expand the program to include three-year-olds, but work to improve the quality of the pre-k facilities and/or increase the number of VPK hours provided to parents every year. While this would be the most costly method, it would also provide the most benefits for parents, potentially leading to better outcomes for families.

**Policy Proposal 1: No Change to Current Program- No Expansion and No Quality Improvements**

Florida’s first option in its approach to VPK is to keep the current program and to forego expansion. While this is the cheapest option for Florida, the state would also not see the benefits added through the expansion.

**Policy Proposal 2: Expansion to Three-Year-Olds with No Quality Improvement**

The second possible course of action for VPK expansion is not changing the current policies, and merely allowing three-year-olds to enter the program. This is the basis of the report, and assumes that the costs of 4yo:3yo in VPK are both scalable and equivalent to one another as all costs of three-year-olds are based on their four-year-old counterparts. The monetary aspect of this expansion may currently be calculated as being an overall cost, but the value of this cost was relatively smaller in comparison to the overall VPK budget and does not include the abstract or incalculable benefits. Additionally, if this course of action is chosen it would be recommended to monitor the participation rate of three-year-olds. If the participation rate is higher than the predicted rate calculated in this report, then the net monetary aspect should become a net benefit.

However, if the rate ends up being lower than the predicted amount, then by depending on the difference this could be cause to re-evaluate whether or not expansion was the correct choice. If this occurs, it is also important for the state to examine any sunk costs as the cost of shutting down the expansion could be greater than the cost of maintaining the expansion.

Of course, the quantitative calculation of our benefits did not include the social and academic impacts of attending VPK. These aspects create favorable outcomes for children who attend VPK programs, so they should be considered. It is inadvisable for the state to examine strictly the monetary effects of an expansion as they do not wholly capture the benefits that would be experienced.

**Policy Proposal 3: No Expansion with Quality Improvement**

Next, we will examine the idea of improving the quality of Florida’s VPK program without expanding it to three-year-olds. The millions that Florida would otherwise use to expand childcare to three-year-olds could instead go to improving the quality of care that children in the state already receive. Florida only meets two of the ten recommended quality benchmarks set by NIEER and could instead budget money towards meeting standards like a smaller staff-child ratio, requiring teacher specialized training, or standardizing preschool staff’s professional development through coaching. As we have seen from our case studies, high-quality preschool was correlated with children’s academic and economic success later in life. Therefore, Florida may consider redirecting the money to improve the quality of existing pre-k services before expanding it to other age groups.

**Policy Proposal 4: Expansion to Three-Year-Olds with Quality Improvement**

This proposal would be the most expensive option for the state, expanding to three-year-olds while also improving the quality of the program. As seen in the Perry Preschool study, children who were randomly selected to receive the high-quality childcare provided by the program had better academic and economic outcomes later in life, with significant benefits shown to impact the students through their forties at the most recent check in. In an argument to increase the number of childcare hours, we can look at the case study from Washington D.C. In D.C., providers all operate five days per week for a minimum of 6.5 hours per day and 180 instructional days per year, equivalent to K-12 school requirements. This expansion has led to the labor force participation rate of women with children under five in D.C. to increase to above 80%, now matching the labor force participation rate of women with children over five in the area.

The cost of improving these benchmarks would likely be large in magnitude, as Florida does not currently meet benchmarks for degree certification of those who teach in the VPK program. This would mean that the labor force of those available to teach the VPK program would decrease dramatically. This would be predicted to raise the cost of VPK as well, in order to accommodate the change in labor supply. If cost did not change in accordance with this labor supply change, then the amount of providers that VPK is offered with would likely fall as the program would no longer have the budget for all of them. This means that either cost would rise or participation in VPK would fall if this proposal is accepted without a raise in budget.

**Recommended Course of Action**

Based on our findings, our recommended course of action is Proposal 2, expanding Florida’s VPK program to three-year-olds with no quality changes. Based on our calculations from the statewide cost-benefit analysis, the costs and benefits from expansion nearly cancel each other out. An addition of 225 three-year-olds to our predicted enrollment number would cause the benefits to outweigh the costs of expansion. These calculations also do not take into account the indirect benefits of expansion, like increased labor force participation rate for parents or earlier opportunities for childhood development for those attending the program a year sooner.

As part of Proposal 2, we also chose not to recommend that Florida make quality improvements at this time. High-quality preschool has been correlated in other states to better educational and economic attainments from students, but these changes are harder to quantify. The few studies that have been done have been from small sample sizes that are hard to scale to a statewide recommendation for Florida. While these quality impacts should be kept in mind for the future, we believe the best change that Florida can make now would be to expand their VPK program to three-year-olds without making any quality changes.

**Appendix**

**-Differences in Summer programs and School-Year Programs**

The summer program has a class limit of 12 students per classroom. The school-year program has a class size limit of 20 students per classroom. The instructor requirements also differ for each program. In summer, instructors must have at least a bachelor’s degree and meet standard background screening requirements. In the school-year, instructors must meet standard background screening requirements and also hold a Birth through Five Florida Child Care Professional Credential.

**-Cost: Cost of teachers added with VPK Expansion**

A possible cost questioned was the cost of teachers needing to be added to the VPK program to meet legal requirements of both student to teacher class requirements, and teacher degree requirements (as the degree requirement limits the available labor). However, there are two points of contention when examining this. First, is that Florida does not currently meet the benchmarks for the student:teacher requirements in the classroom, as well as it does not meet the benchmark for degree requirements so there is no reason to think it would start meeting these benchmarks. The second factor is that providers to VPK (the schools or churches running the program), are actually the ones who decide who to hire (teachers/janitors/administrators); the state is not involved in hiring outside of the minimum qualifications for programs. If VPK providers must expand to accommodate higher enrollment, the direct costs to providers must be considered.

**-SIS: Specialized Instructional Services Program**

Children with special needs/disabilities and have an Individualized Education Plan (IEP), VPK funding is allocated for an IEP service.

**-VPK Provider Restrictions**

VPK Providers are not allowed to charge a fee for VPK services or require parents to sign their child up for any additional services outside of VPK hours. However, providers are free to charge fees for anytime child care is provided before or after VPK hours. Additionally, if a parent is late to pick up their child from VPK, providers are able to impose a fee.

**-SIPP Data**

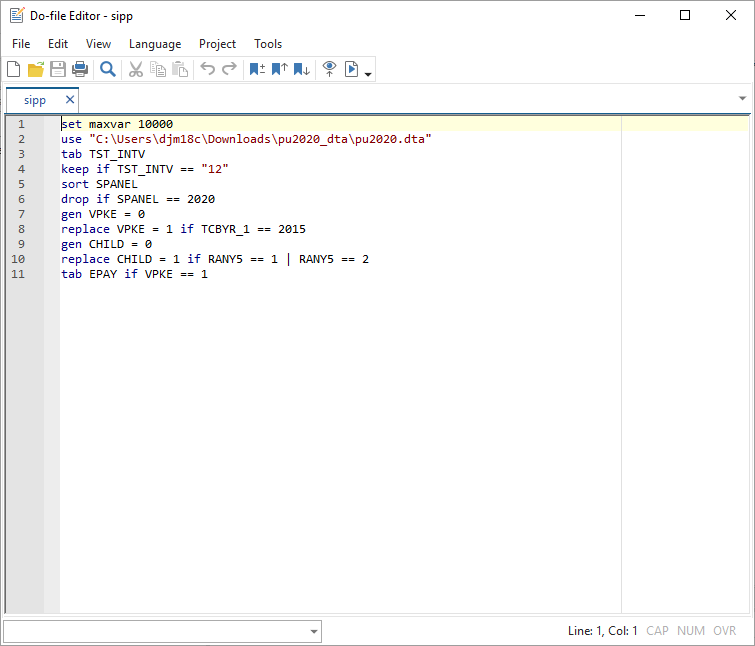
**-VPKE**

We created the VPKE variable as a measure of all households in the sample that were eligible to participate in the VPK expansion. To do this we simply set a dummy variable “VPKE” equal to 1 for every household that has a three-year-old child, and then looked at the distribution of the VPKE variable. The variable TCBYR\_1 is the birth year of individuals in a household, so if this value was “2015” for an individual (meaning that they are 3 since the data is from 2018), we had VPKE=1.

**-EPAY**

The EPAY variable was premade in the SIPP data. It is important to note that it merely tells us if a household paid for child care in a given year. It does not tell us if a family was paying for a childcare provider that does not offer VPK, and it does not tell us how much they were paying for childcare. However, given that the VPK eligibility is open to all, we felt safe classifying savings to families as calculated through EPAY as potential savings.

**-SIPP Data manipulation:**



The “set maxvar 10000” command is important to use before running the rest of the program, as the data will not load if it is run simultaneously with the rest of the do file. The SIPP data has 5026 variables, and Stata is only defaulted to read a maximum of 5000 variables. Setting maxvar to anything above 5026 should work, we went with a large value merely so that we could create and manipulate new variables without worrying.

The second line of the “do.” file should have "C:\Users\djm18c\Downloads\pu2020\_dta\pu2020.dta" replaced with the file location of the SIPP data on whatever computer you run the data with.

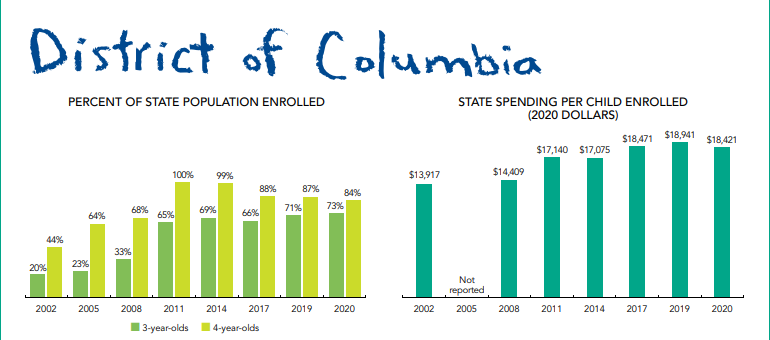
The TST\_INTV variable is the state that the household is located in, we limited this to keep only values of “12” in order to remove every non-Florida household.

SPANEL was a panel year, either 2018 or 2020. We dropped 2020 in order to not have covid data interfere with our analysis.

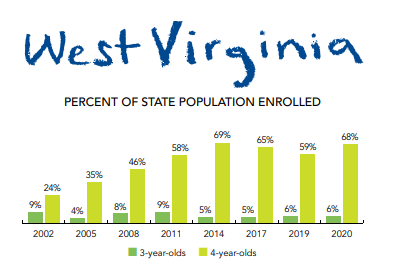
**-The formation of the 3yo participation rate**

Below are the graphs used from the NIEER “State of Preschool 2020” report to gather VPK participation data on three-year-olds and four-year-olds, as talked about in the formation of our three-year-old VPK participation rate earlier in the report

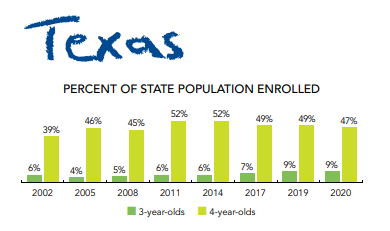
**-District of Columbia:**



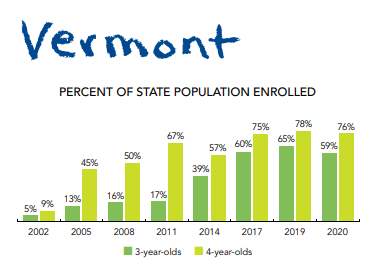
**-West Virginia:**



**-Texas:**



**-Vermont:**



**-Consolidation of Numbers:**

* Proportion of 3yos participating compared to 4yos participating: .463
  + 3 YO PARTICIPATING: 63,533
  + Proportion of 3yos in overall population: .78%
  + Current florida population: 21,781,128
  + Participation rate of 4yos in 2018 year: 75%
  + Current state cost per child: 2,222$
* VPK Admin Ratio: 1689 ratio of staff to children served
* Average wage of VPK administrators:
  + Current Admin Expenditures: 13,130,142
  + Admin Expenditures/VPK Staff (92) = 142,718
* % EPAY Yes Respondents: 60%
* Average cost of childcare per hour: 13.31
  + <https://www.bls.gov/oes/current/oes399011.htm>
* VPK Hours: 840 (540/300)
* Elasticity for women labor with mothers
  + Total number of households: 7,931,313
  + VPK Eligible households: 1.23%
    - 97555
  + Married: -.309
  + Single: -.521
* Total Average childcare cost:$6,647
  + <https://www.ced.org/State_Fact_Sheets_Talkers/FL%20-%20FACT%20SHEET.pdf>
* C- State cost per child
  + (63,533)X(2,222$) = 141,170,326
* C- Administrative Costs
  + (63533)x(1/1689)x(142,718$\*) = 5,368,444
* B- Potential Money saved to households in school year: (.6)x(9,7555)x(13.31)x(540) = 420,700,084 (or 7187 to an individual household)
* Number of 3yos participating: (.463) x ( 21,781,128 x .0084) x (.75)
* (2018) Vpk Admin wages: 13,130,142 / 92
* Data sourcing The Florida VPK Public records office was contacted in an attempt to obtain individual level data on VPK participating families but no response was received. In future study this data could prove useful in obtaining the true number of VPK hours used by each family.
* Benefits: DC Case Study Figures

Table

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Chart, line chart

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1. <https://www.floridaearlylearning.com/vpk/floridas-vpk-program>

   \*The appendix contains more information on this [↑](#footnote-ref-1)
2. https://www.floridaearlylearning.com/vpk/vpk-providers/vpk-curriculum [↑](#footnote-ref-2)
3. https://nieer.org/wp-content/uploads/2021/02/Florida\_YB2019\_Rev.pdf [↑](#footnote-ref-3)
4. https://nieer.org/wp-content/uploads/2022/04/Florida\_YB2021.pdf [↑](#footnote-ref-4)
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