Modeling trends in Adoption in the United States for the next decade.

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Abstract:
This paper discusses the trends of adoption in the United States during the period of 2000 to 2010 to look for trends in anticipation for the years 2011 to 2020. The discussion covers intercountry adoption and adoption from the Foster Care system in the United States. This will discuss anticipated trends in these two areas in detail so decision makers can project and ensure the underlying institutions can support the anticipated change that is expected in the future.

Introduction

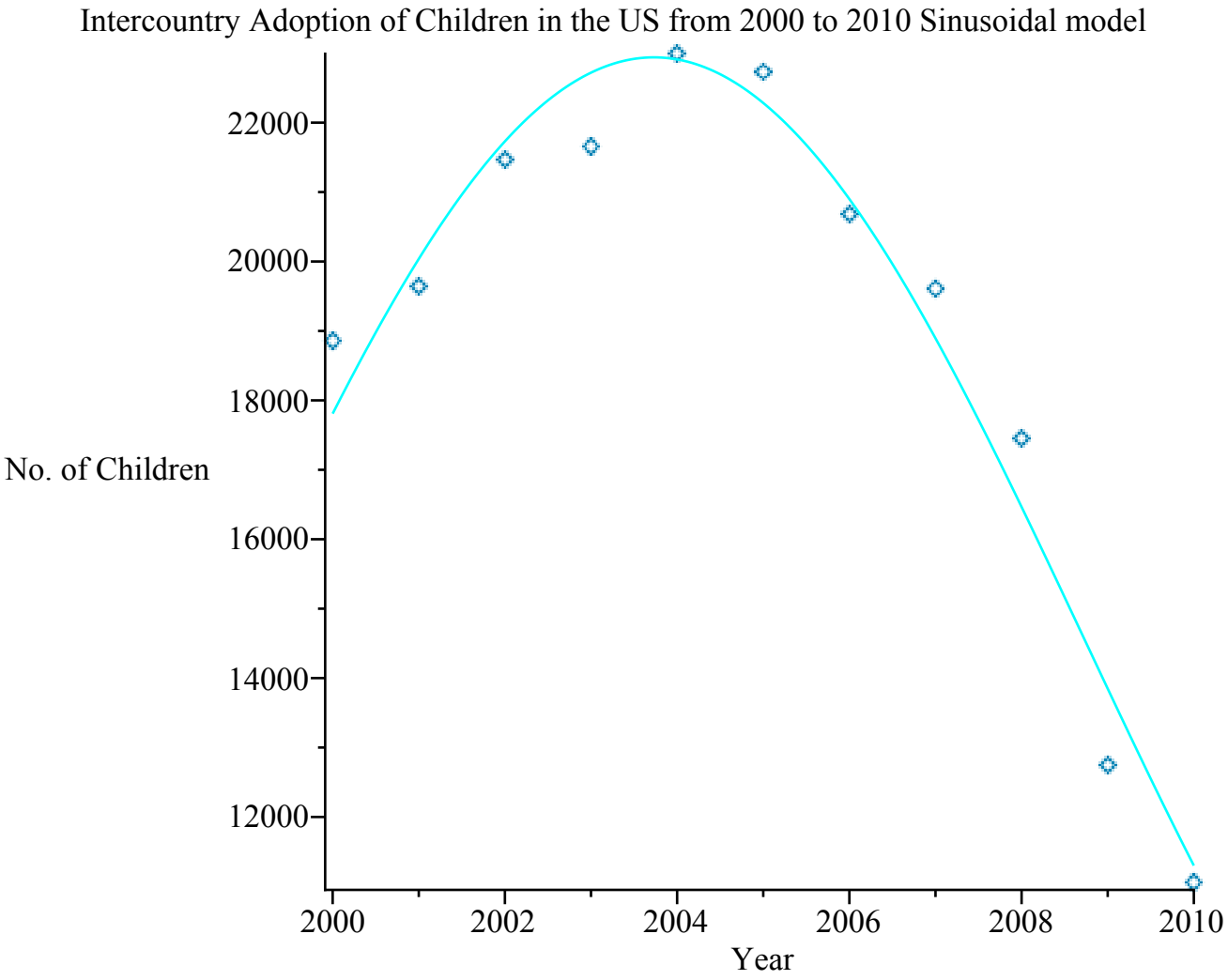
This project took an investigative approach to current trends in adoption in the United States and specifically looked at Intercountry Adoption and Adoption of children from Foster Care. These members of our society are the most vulnerable and need our support. This project is not a "report card" but a look at the trends in the past decade (2000 to 2010) so decision makers can use the data to make prudent decisions to ensure we are prepared to provide the needed support in the upcoming years this new decade (2011 to 2020).

Methods

The data was reviewed for the time period of 2000 to 2010 and we applied a best fit linear model, cubic model and sinusoidal model. The data was tested for levels of significance. Once deciding on which model to use we looked at the deterministic model for the data and then compared this deterministic model to actual data for the time period of 2000 to 2010. From this comparison we added stochasticity to the model and ran a simulation for the period of 2011 to 2020. This simulation gives us a range of expected outcomes during this time period.

Results

When looking at the results of applying the best fit of these models to the data for InterCountry Adoption for the time period of 2000 to 2010 the linear model only had a significance level of 37.1%, the cubic model also only had a significance level of 37.5% but, the sinusoidal model had a significance of 95.97%.



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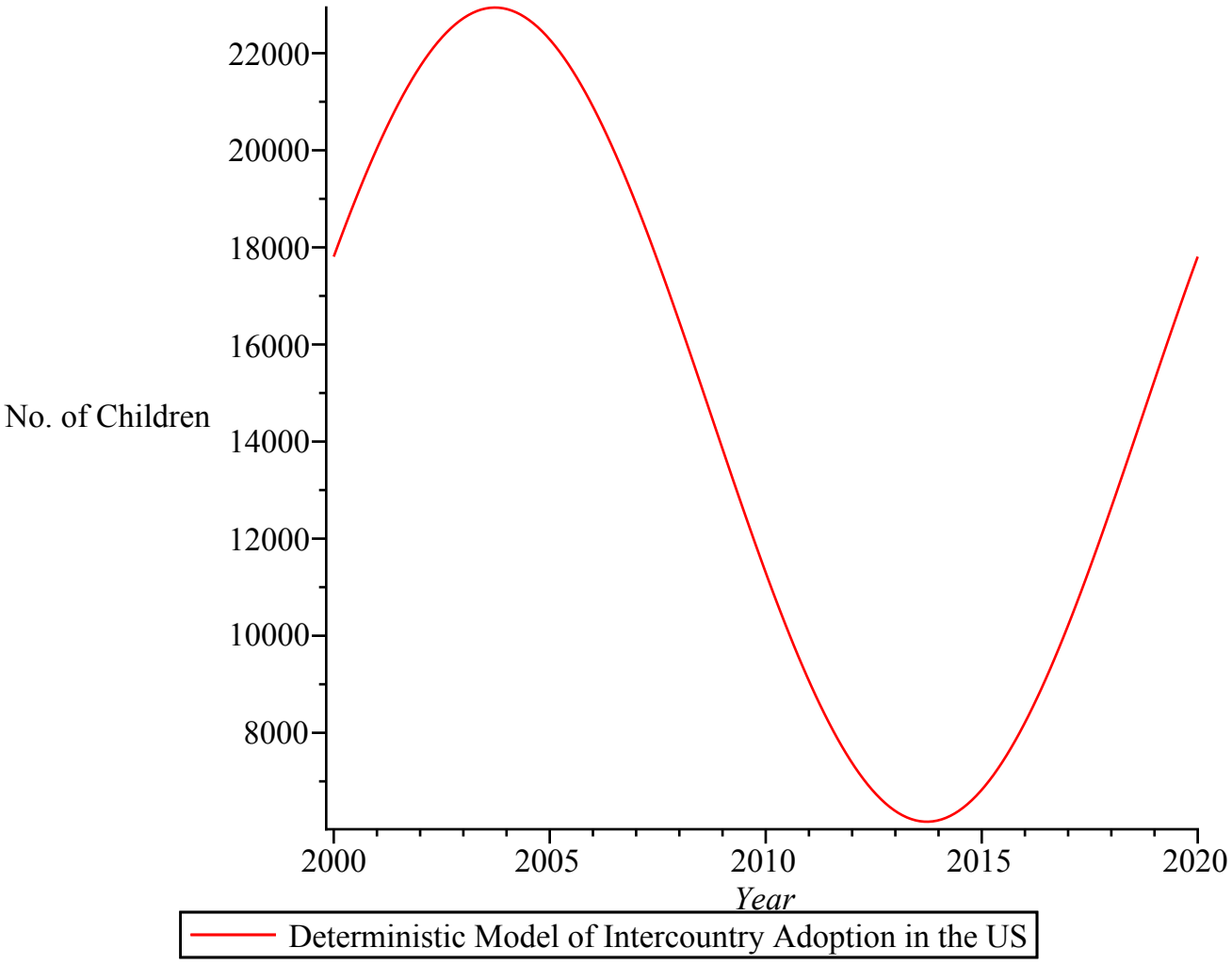
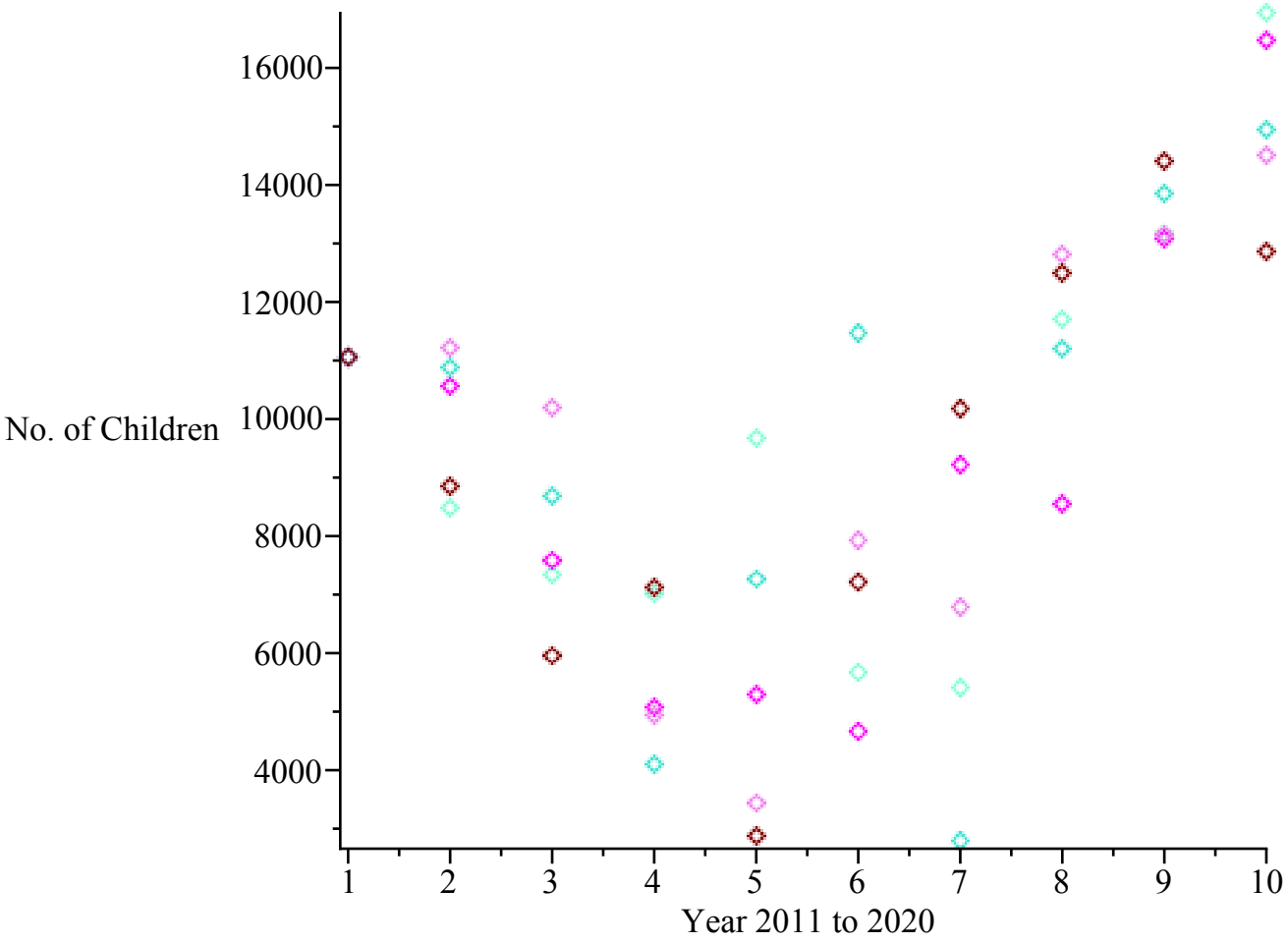
If we take this model and project to 2020 we get the following projected model.

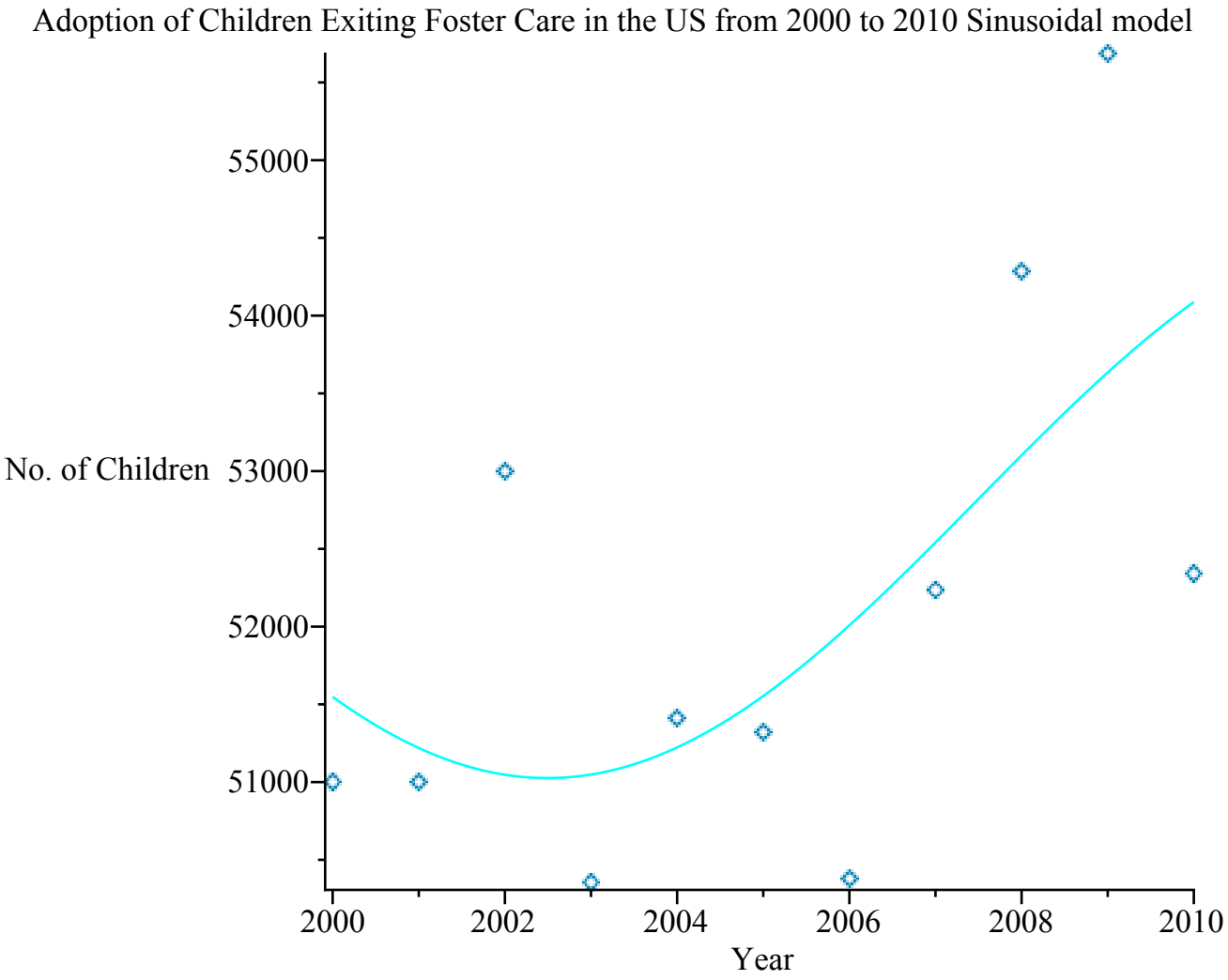


We analyzed the data from 2000 to 2010 and compared the data to the above deterministic model to add stochasticity to the model an then simulated the years 2011 to 2020 and obtained the following results.

Stochastic Forecast Simulation (Five Time) of Intercountry Adoption in the US from 2011 to 2020



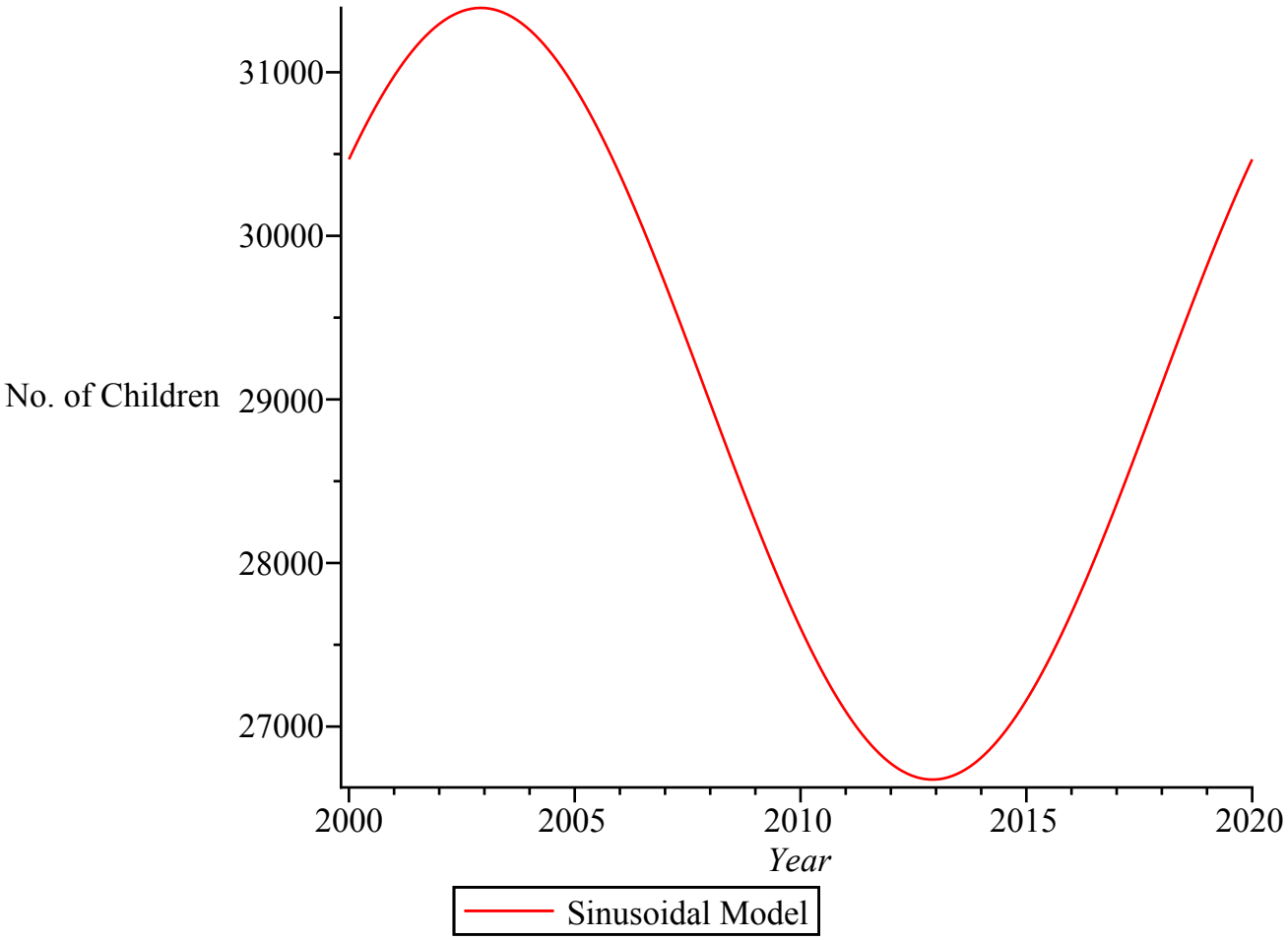
The data for children adopted from foster care was analyzed directly and the results were not as useful. When looking at the results of applying the best fit of these models to the data for the time period of 2000 to 2010 the linear model only had a significance level of 25.8%, the cubic model also only had a significance level of 25.9% and, the sinusoidal model had a significance of 36%.



To investigate further I looked further into the data and investigated the three major categories that make up the figures for the total number of children leaving foster care. Specifically, these categories involved the relationship of the parents prior to adoption of "Non Relatives", "Foster Parent" and "Relatives". By peeling the onion we were able to get a better understanding at the underlying trends here.

The first of these three sub categories "Non Relatives" was the smallest of the three categories analyzed directly the results were not useful. When looking at the results of applying the best fit of these models to the data for the time period of 2000 to 2010 the linear model only had a significance level of 23.3%, the cubic model also only had a significance level of 23.1% and, the sinusoidal model had a significance of 5%.

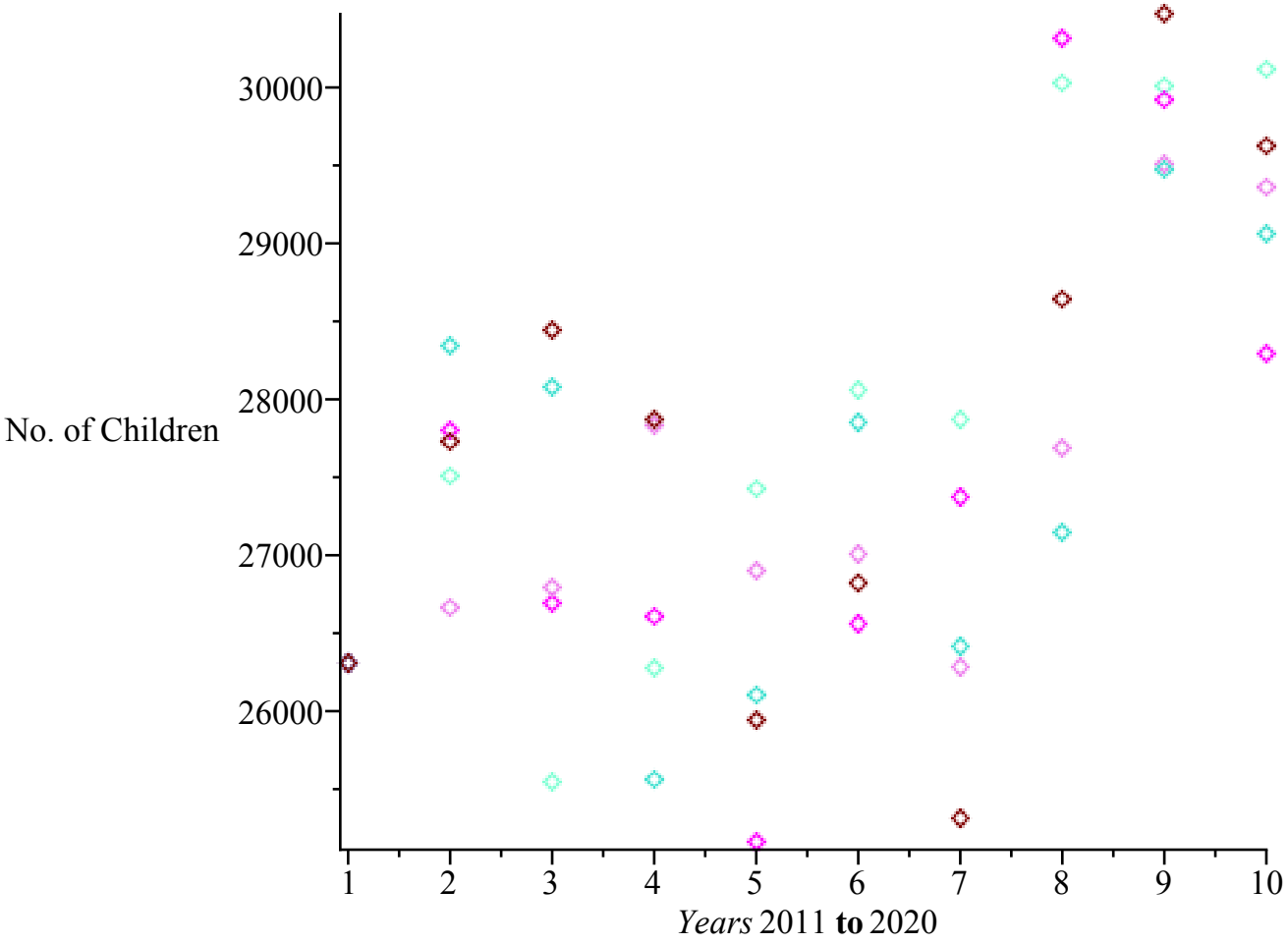
The second of these three sub categories "Foster Parent" was the largest of the three categories and analyzed directly the results were useful. When looking at the results of applying the best fit of these models to the data for the time period of 2000 to 2010 the linear model only had a significance level of 50.7%, the cubic model also only had a significance level of 51.0% and, the sinusoidal model had a significance of 70.6%.



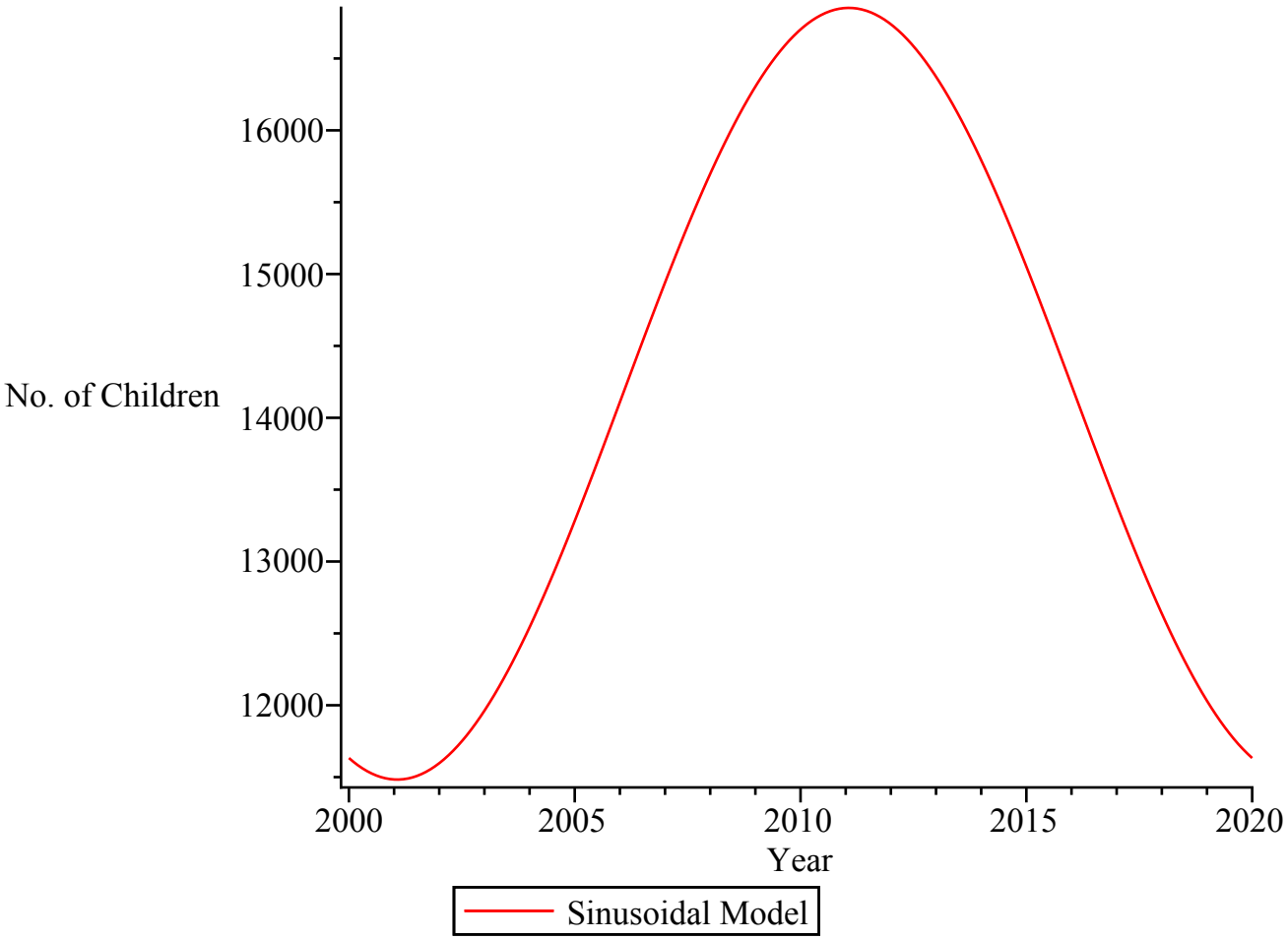
deterministic Sinusoidal Model of the Relationship Prior to Adoption Foster Parent of Child in Foster Care until 2020

We analyzed the data from 2000 to 2010 and compared the data to the above deterministic model to add stochasticity to the model an then simulated the years 2011 to 2020 and obtained the following results.

Stochastic Forecast Simulation (Five Times) Relationship Prior to Adoption Foster parent of Child in Foster Care in the US from 2011 to 2020



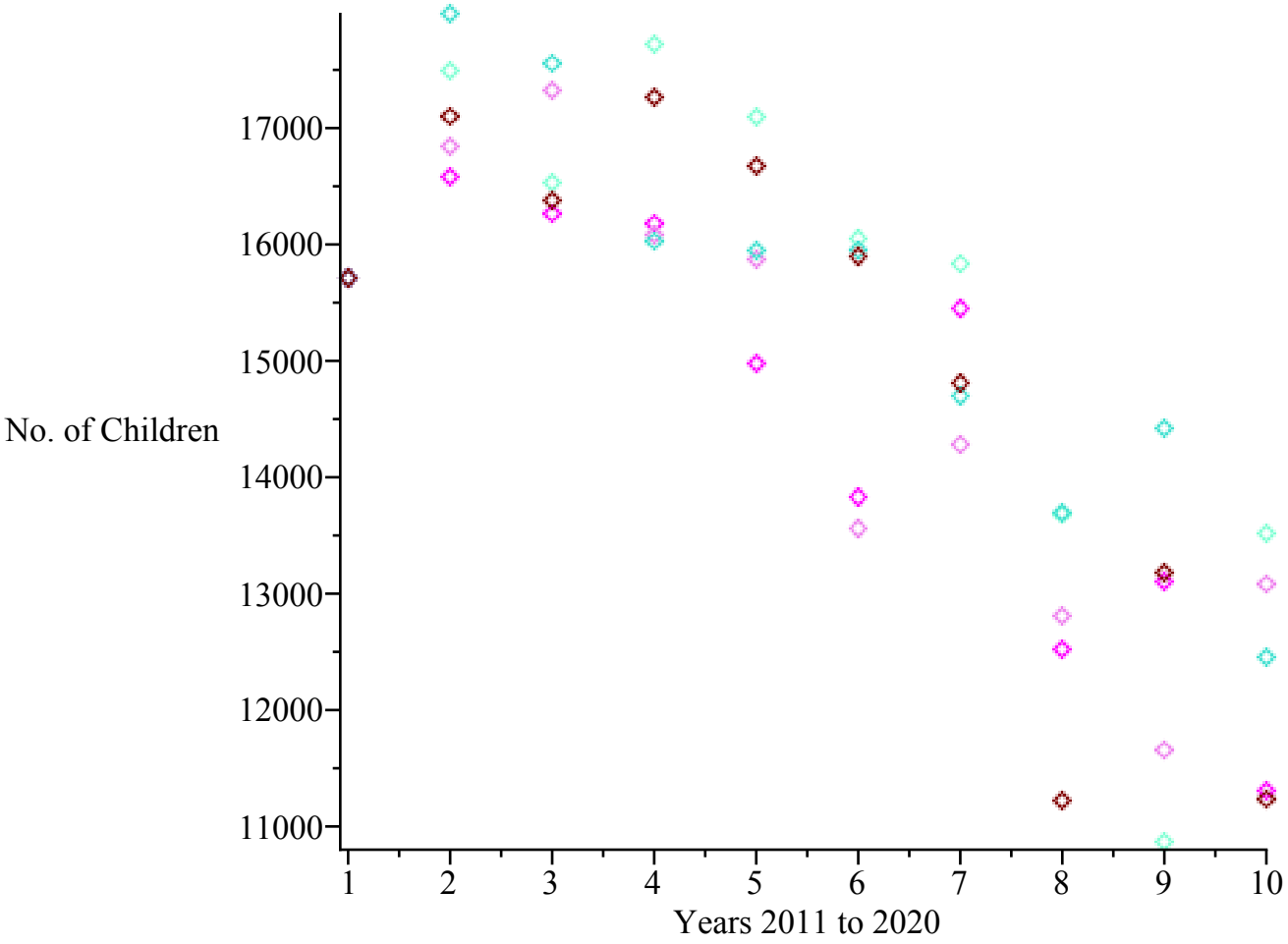
The third of these three sub categories "Relative" was the second largest of the three categories and when analyzed directly the results were useful. When looking at the results of applying the best fit of these models to the data for the time period of 2000 to 2010 the linear model had a significance level of 80.2%, the cubic model had a significance level of 86.5% and, the sinusoidal model had a significance of 84.4%. All three of these models were very close in significance; however, I have selected the sinusoidal model and will discuss this further. The deterministic sinusoidal model yields the following projection below:



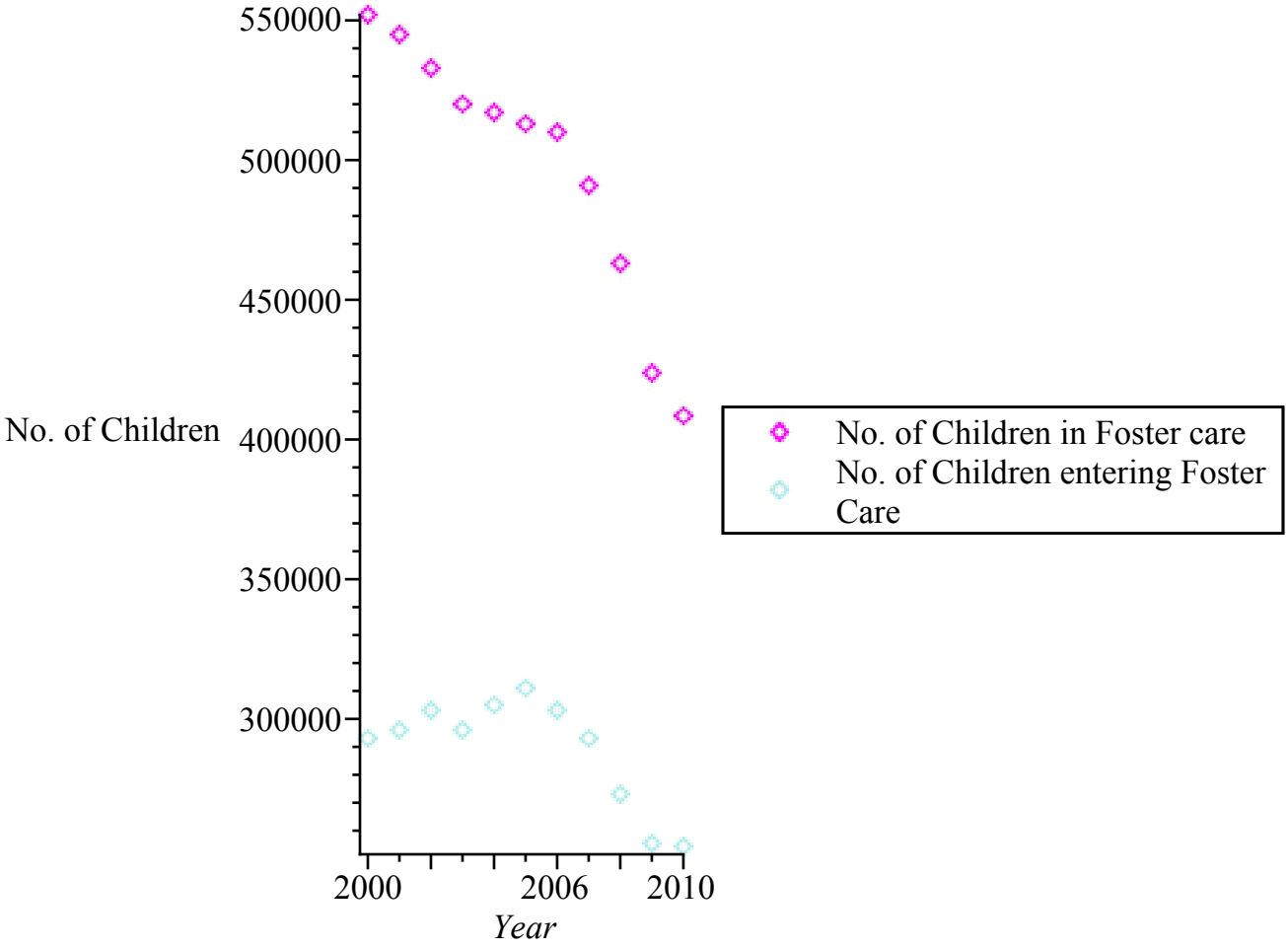
deterministic Sinusoidal Model of the Relationship Prior to Adoption Relative of Child in Foster Care until 2020

We analyzed the data from 2000 to 2010 and compared the data to the above deterministic model to add stochasticity to the model an then simulated the years 2011 to 2020 and obtained the following results.

Stochastic Forecast Simulation (Five Times) Relationship Prior to Adoption Relative of Child in Foster Care in the US from 2011 to 2020

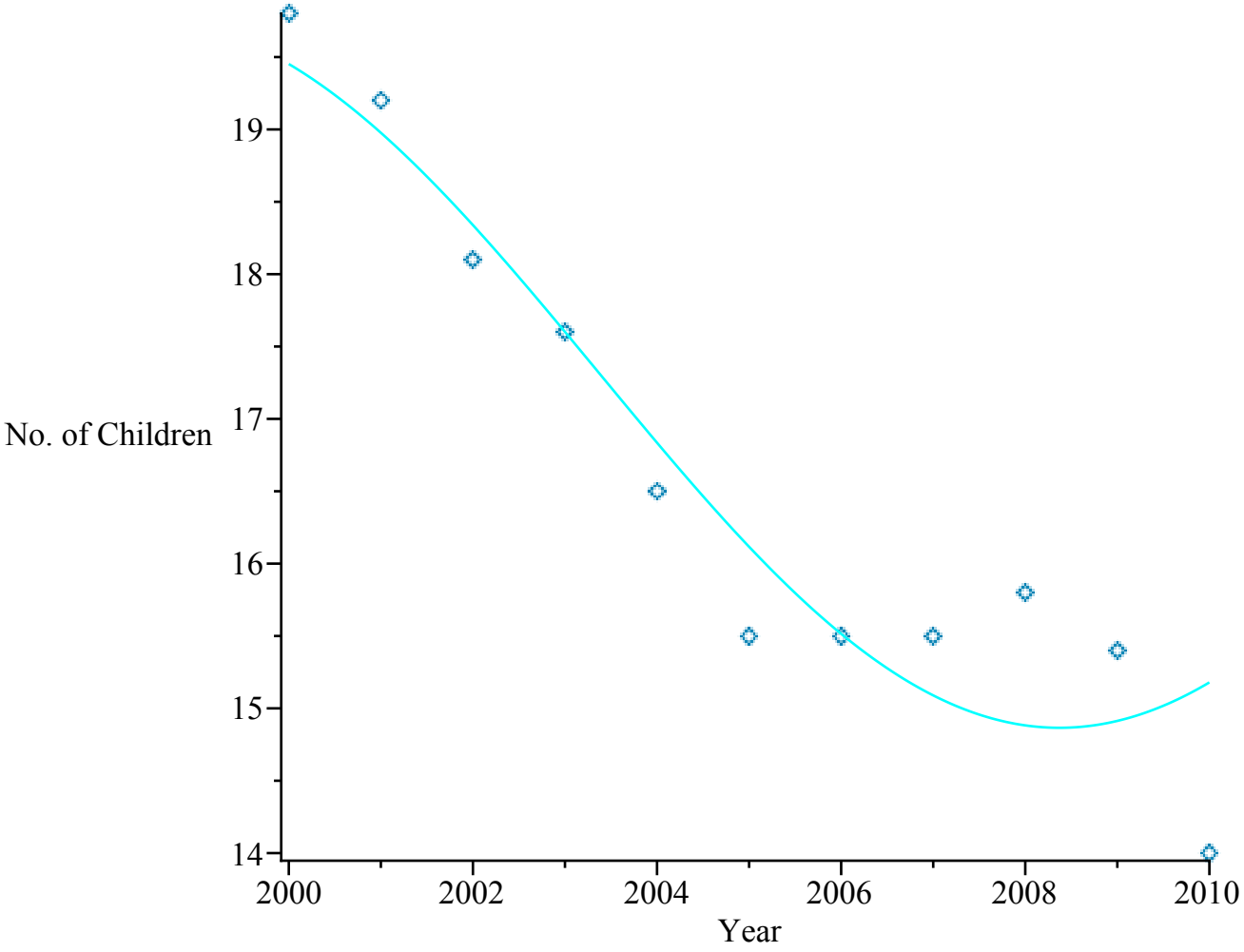


Trend the the past decade (2000 - 2010) in the number of children in foster care and the no. of children entering foster care.

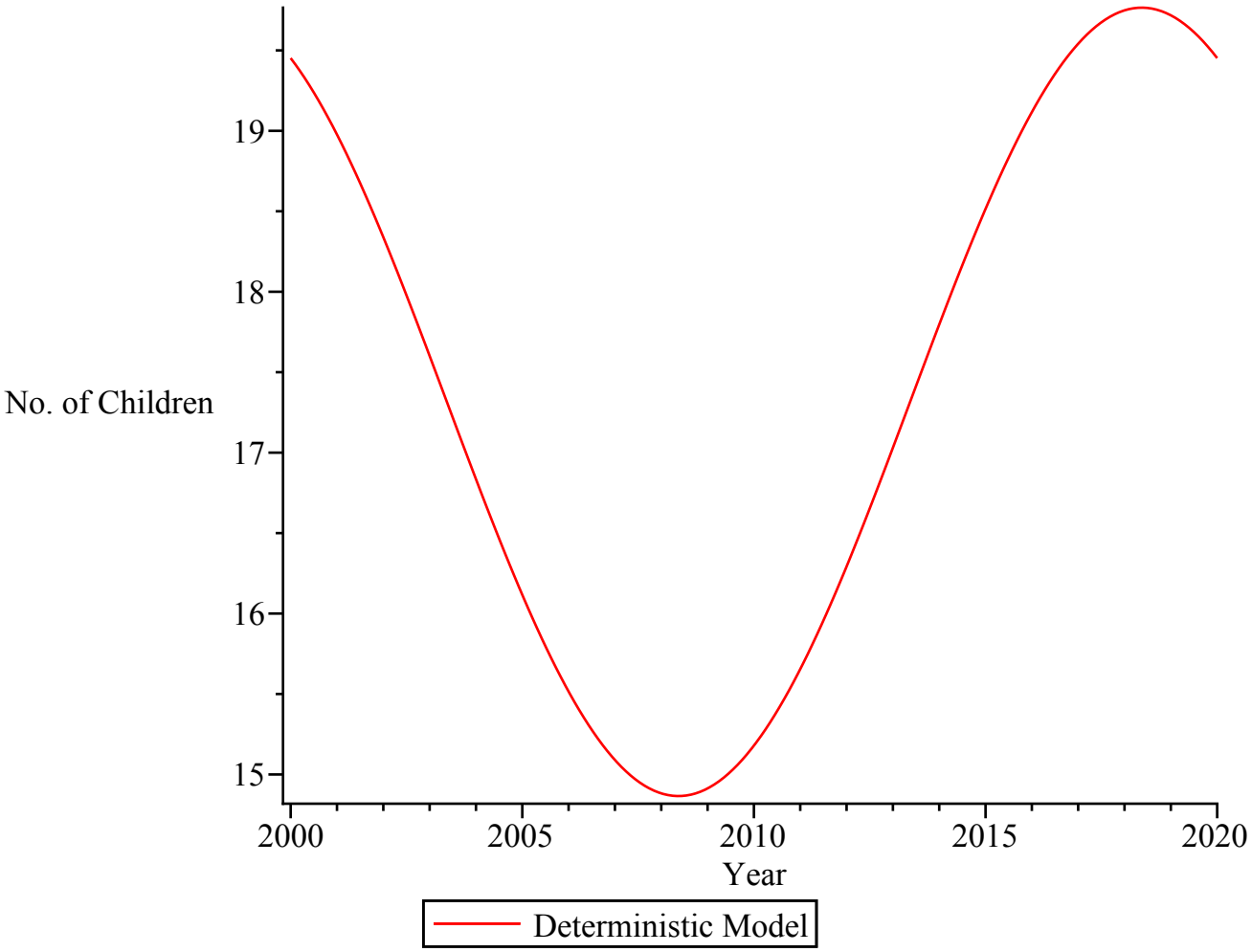


The data for mean number of months in foster care was analyzed directly and the results were useful. When looking at the results of applying the best fit of these models to the data for the time period of 2000 to 2010 the linear model only had a significance level of 86.7, the cubic model also only had a significance level of 86.5 and, the sinusoidal model had a significance of 88.5%. The three models were very close in significance with model with the sinusoidal model having the most significance. While I have chosen the model with the highest significance here I think it would be prudent to revisit the data in 2015 to validate this.

Median Months in Foster Care of Children in the US from 2000 to 2010 Sinusoidal model



The deterministic sinusoidal model yields the following projection below:



deterministic Sinusoidal Model of the Mean Months in Foster Care until 2020

Discussion

Different aspects of the adoption process follow different models and cycles and we need to look at these carefully to uncover trends to make useful models so we can predict within reason and ensure we have the adequate resources available. The first of our models presented involved Intercountry adoption had had a very high significance level of over 97%. While the trend the past decade has been downwards the model shows that this should bottom out in the years 2013 and 2014 and should trend upwards in 2015. This is important to all the agencies involved in this process as well as other related support organizations and health care related services. There are an array of options when it comes to adoption and intercountry adoption is one. A great majority of those parents who choose this option want a very young child under the age of two. In addition, a percentage of the children that are adopted will be at high risk for certain developmental disorders that will need to be addressed after they arrive to the U.S. One such example is the need for speech therapy for children with feeding disorders. Qualifying for early intervention services will vary from state to state. Consequently, only those meeting the qualifying requirements get early intervention services, meanwhile, others will seek private services through their insurance. In this specific example, states will want to look at the level of speech pathologists in their states. If levels are very thin now, they would want to ensure they promote entry into this field (Maybe full scholarships) at the state university level now so they will have college graduates as the demand increases.

The model for children exiting Foster Care was much more of a challenge. Usually, this means that there is more going on than what is at the surface. We were able to make progress by focusing on the three biggest categories that comprised the aggregate data. The smallest of these categories "Non relatives" still did not yield any significant results. While if needed we could just get some general statistical distribution data and use this to add to the other two categories, I think taking a sample of the population to discuss reasons for their decision as well as candidate that inquired but did not ultimately adopt would shed some light on what is going on there.

We did yield some interesting results with the largest subcategory "Foster Parent" and with this sub category we see a similar pattern to that of intercountry adoption with the numbers bottoming out around 2013 and increasing afterwards. There is also a close relationship between the number of children in foster care which has been decreasing and the number of adoptions by foster care.

While the numbers of children adopted by "Non Relatives" and "Foster Parents" has seemed to decrease during the past decade with the number of children entering Foster Care decreasing the total number of children being adopted from Foster care has remained stable due to the last category of "Relative". The cubic model was a slightly better fit for the data than the sinusoidal model but, I decided to keep the sinusoidal since everything about this subject is cyclical along with population birth rates. I think this needs to be revisited in 2015 to see which of the two models are showing a better fit at that time. If we consider the sinusoidal model this category will peak at approximately 2013 and then decline. (Counter cyclical to the other two patterns uncovered). In the interim, what can be done is to conduct survey of a random sample of field agents and a random sample of the relatives who chose to adopt to uncover the reasons for their decision. Perhaps there are opportunities to encourage this subcategory to continue their support.

Also looked at was the median years in Foster Care. I only looked at the deterministic model here which shows an anticipated increase until 2018-2019. Here again I think we can conduct a survey of a random sample of field agents to get their input. I am confident there are opportunities to skew the anticipated rise in median years in Foster Care to minimize the rise/increase.

Ultimately, there will be an increase in the number of children in Foster Care as this decade and there is an anticipated increase in the number of adoptions. While this process is cyclical perhaps we can learn from each experience to remove barriers and help facilitate this process further.

Citations

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