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Advanced analytics for child support programs
From reactive enforcement to proactive prevention — Part I

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It is no exaggeration to say that predictive modeling and the mining of large databases using advanced analytics has become a major cultural trend that is changing the world in which we live. In areas as disparate as marketing, insurance, professional sports, entertainment, education, and medicine, powerful statistical equations are routinely developed to anticipate various types of events and human behaviors. As consumers, such equations touch us almost daily: they can generate book and movie recommendations, insurance quotes, the catalogues and bank offers that come in the mail, and the coupons we receive in the grocery store checkout line. And as taxpayers, we increasingly see predictive models used to make local, state, and federal government agencies run more smoothly and economically. Today, many government agencies use predictive models to more effectively allocate resources, help identify opportunities, and target decisions in such realms as tax collection, workers compensation insurance, criminal recidivism prevention, Medicare, Medicaid, unemployment insurance, and Child Support.

It is, therefore, not surprising that business analytics has risen to the top of many lists of business priorities. Business intelligence and analytics applications clocked in at number 8 in the National Association of State Chief Information Officers' top 10 ranking of priority technologies, applications, and tools for 2011.[1] At the 2010 Gartner Symposium/ITxpo, Gartner analysts shared the top 10 technologies and trends that will likely be strategic for most organizations in 2011. On this list were next-generation analytics that can focus on predicting future outcomes; and social analytics that can focus on understanding the interactions and relationships between parties involved in a transaction.

The national child support community recognizes the value that data and analytics have in case management. The Federal Office of Child Support Enforcement's (OCSE) June 10, 2011 Strategic Plan working paper, titled *National Child Support Guiding Principles and Strategies*, included the following as part of a guiding principle: "We use data to understand, analyze, and sort our caseload to respond to different case needs."[2]

Part I of this article will provide some background on the rise of analytics, discuss the budgetary challenges facing states, and talk about the internal and external data required to build a powerful predictive model. Part II of this article will discuss the basics of child support predictive modeling, how analytics can be leveraged in child support enforcement, and outline ways advanced analytics can play a critical role in helping child support agencies enhance the

collections process, improve revenue collection, increase the likelihood of meeting performance-based incentive funding, and proactively identify and help mitigate the non-custodial parents (NCPs) most likely to go into arrears in the future.

The rise of analytics

Our world is rapidly changing because of technology advancements, enhanced data capture, increased advanced analytics ability and a shift in focus from the use of hindsight indicators to the use of predictive indicators (i.e., looking out of the front of the car versus looking out the rear view mirror). Advanced analytics, loosely defined as the use of statistics, data, and computing power to anticipate outcomes and provide new insights, is really nothing new. After all, banks have been using credit scores to sell loans and determine interest rates for decades; and actuaries have been plying their advanced analytical trades even longer. Still, analytics have entered the mainstream consciousness only recently. A number of factors are driving the buzz.

- **Data:** Government agencies have been capturing valuable information for years. More importantly, there has been a strong focus over the past decade on cleansing their electronic data. In addition, child support agencies can have access to data from a number of sources as state and federal agencies, utility and phone companies, financial institutions, new hire and third-party employment and employer data, courts, and prisons. Multiple states have started using data broker services to augment their current data about individuals. When combined with the growing volume of externally available information (e.g., household-level data such as age, occupation, household expenditures, behavioral, lifestyle, and block group-level data such as median home value, education, employment, and income), certain agencies across the country are beginning to recognize the power of leveraging advanced analytics to provide insight into their data.

- **Technology:** "Moore's Law," named after Gordon Moore of Intel, has come to denote many forms of exponential growth in the realms of Information Technology (IT) and analytics. We continue to see exponentially decreasing costs of data storage and computing power as well as exponentially increasing amounts of data captured each day. In short, the ability — and the need — to analyze massive amounts of data has undergone dramatic growth.

- **Analytical Tools and Techniques:** There has also been an exponential proliferation of analytical techniques and tools which has helped to allow academics and practitioners around the globe to collaboratively push the analytics revolution forward.

- **Media blitz:** Hardly a day goes by without a company, consultancy, newspaper, or author discussing the power of analytics. Books like Michael Lewis's *Moneyball*, Ian Ayres' *Super Crunchers*, Kaiser Fung's *Numbers Rule Your World*, and Thomas Davenport and Jeanne G. Harris' *Competing on Analytics* have led to an increased understanding and broader appreciation of the power of analytics. If you thought you were tired of hearing KPI, "key performance indicator", give it a few years and you will likely get tired of hearing KPP, "key performance *predictor*."

- **Informatics Evolution:** With the explosion of social media, high powered personal digital assistance (PDAs), data-driven web sites (e.g., fantasy baseball, football, hockey) and instantaneous access to information, our society in general has not only become more used to leveraging the power of statistics, but also may have come to expect it. Millennials, Gen Y'rs, and a growing number of Gen X'rs increasingly embrace solutions with "analytics inside", in much the same way that older Gen X'rs and Baby Boomers learned to embrace the personal computer.

Government budget challenges

States across the country are struggling with high unemployment, home foreclosures, declining revenue, and staggering budget deficits. According to the Center on Budget and Policy Priorities, states are facing total budget gaps of $112 billion for fiscal year 2012, which starts July 1 in most states. Only a handful of states appear to be among states not facing a budget shortfall.[3] At the Federal level, with the United States House of Representatives battling hard to reduce spending, there is concern that any reductions in the federal incentive match could adversely impact child support agencies and possibly hamper the progress that has been made since the passage of the Child Support Enforcement Incentive Act in 1998. The Deficit Reduction Act of 2005 typically resulted in reduced federal funding of child support programs and led to the decrease of over 5% in the federal share of total administrative expenditures from federal fiscal year 2006 to 2008 before the funding was temporarily restored as part of American Recovery and Reinvestment Act of 2009.[4]

The national Child Support program has been one of the most efficient and effective programs in government. In fact, two of the better performing programs in the Federal Government are the Internal Revenue Service and the Child Support program. The Child Support program achieved this high level of performance in part through the use of analytics to help measure the effectiveness of the program and a data-driven, evidence-based approach to making more efficient business decisions about program improvements.5

With rising caseloads and challenging economic times for the agencies and the case participants, advanced analytics can be viewed as a way to help agencies and case workers effectively focus their attention on specific cases, and take the required/applicable case actions to help improve the ability to collect on behalf of the family. With analytics assisting with a lot of the "heavy mathematical lifting," case workers can be freed up to use their time more strategically.

Data as the foundation

Building a powerful predictive model can be a lot like building a dream house: it starts with a strong foundation. Data is the foundation of a strategic predictive modeling initiative: both the agency's internal case data (the soil), as well as publicly available externally third-party data (the crushed gravel that helps strengthen the soil). Child support agencies across the country possess treasure troves of historical data on the cases they manage. States gather such extensive case-level information as monthly support obligation, employer information, asset information, arrears information, income, prior enforcement actions taken, and so on. Though highly valuable, this data typically lies fallow rather than being used to improve efficiency and drive more productive decision-making. This presents an opportunity for forward-thinking agencies. The large amounts of high quality data available for analysis can be leveraged to effectively guide the panoply of enforcement measures that may be available to child support professionals, such as national and state new hire reporting, tax offset programs, financial institution data match, credit bureau reporting, license suspension, and liens on real estate.

In short, the data is rich, broad, available — and valuable. The challenge — and opportunity — of predictive modeling can be to build valuable decision support tools on this foundation.

Conclusion

The ability to leverage advanced analytics has come a long way over the past few decades. With rising case loads and challenging economic times for the agencies and the case participants, there is no doubt analytics can play a role in freeing up case workers to use their time more strategically. With the treasure troves of historical data available to child support agencies, we believe child support agencies are in a position to more efficiently anticipate which NCPs may become more challenging in the future and be more prepared to take immediate preventative action. Part II of this article will walk the reader through the rest of the modeling journey.

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Endnotes

1 National Association of State Chief Information Officers (NASCIO), October 19, 2010, "State CIO Priorities for 2011", http://www.nascio.org/publications/documents/NASCIO-CIO%20Priorities%202011.pdf

2 Office of Child Support Enforcement (OCSE) DCL-10-09, http://www.acf.hhs.gov/programs/cse/pol/DCL/2010/dcl-10-09.htm

3 Stateline, March 15, 2011, "State Budget Gaps: How Does Your State Rank", http://www.stateline.org/live/ViewPage.action?siteNodeId=136&languageId=1&contentId=15158

4 Financial Overview for Five Consecutive Fiscal Years from OCSE-34A and OCSE-396 Reports
   http://www.acf.hhs.gov/programs/cse/pubs/2010/reports/preliminary_report_fy2009/table_1.html

5 Office of Child Support Enforcement FY2005 Annual Report to Congress, May 2008
   http://www.acf.hhs.gov/programs/cse/pubs/2008/annual_report/#focusing