MATERNAL SEPARATION IN THE CONTEXT OF IMMIGRATION: EXPLORING THE IMPACT OF IMMIGRATION EXPERIENCE AND SENDING REGION ON CHILDREN'S EDUCATIONAL AND PSYCHOLOGICAL OUTCOMES

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ABSTRACT

The literature assumes immigrant children arrive to the United States with their mothers, but this is changing. This study compared left-behind children (mother emigrates first), parachute children (child emigrates first), and family migration (no maternal separation) from Asia, the Caribbean, Central and South America. Data from the Children of Immigrants Longitudinal Study measured behavioral, educational, and psychological. Caribbean and Central American left-behind children had longer maternal separation than Asian, $p < .01$ and $p < .05$, respectively. Children of family migration had the highest grade point averages ($p < .05$). An association between high school dropout rates and maternal separation was found ($p = .001$) and parachute children showed greater behavioral problems ($p < .05$). Depressive symptoms were higher for Caribbean left-behind children than Caribbean children of family migration ($p < .01$). Findings suggest that maternal separation negatively affects a significant portion of immigrant children. How policymakers respond to this growing constituency will have serious implications for the United States economy and society. This author recommends that immigration reform consider the diversity of children's immigration experiences and its subsequent impact on their families, educational outcomes and psychological wellbeing.

BIOGRAPHICAL SKETCH

Rochelle Coretta Cassells was born on February 16, 1990 in Saint James, Jamaica. She emigrated to Barnegat, New Jersey at the age of eight. She attended Temple University in Philadelphia, Pennsylvania where she received her Bachelor of Arts in Psychology. During her undergraduate tenure, she secured a competitive research fellowship from the National Institutes of Health. The Minority Access to Research Careers program afforded her the opportunity to conduct summer research with Gary W. Evans at Cornell University. She graduated *magna cum laude* from Temple University in 2012, with a distinction in Psychology and minors in French and Political Science. Rochelle is currently a doctoral student in the department of Human Development at Cornell University where Gary W. Evans serves as her special committee chair. She is a National Science Foundation Graduate Research Fellow.

For my mother Claudette, love and gratitude forever.

For my father Ruddy, it's been a long day without you and

I'll tell you all about it when I see you again.

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INTRODUCTION

Immigrant children in the United States are an important research population because they constitute the fastest growing demographic (Tienda & Haskins, 2011). The physical, psychological, economic, and educational outcomes of immigrant children have serious consequences for the nation's social and economic fabric. It comes as no surprise then that the literature is replete with studies of their assimilation and adaptation (Hernandez, 1999), and specifically how they compare to their native counterparts on the aforementioned dimensions (Portes & Rumbaut, 2001). Recently, scholarship has increased concerning the growing diversity of the immigrant children (Hernandez, 1999; McDonnell & Hill, 1993; Zhou, 1997); however, the diversity of immigrant children is not limited to their countries of origin. In fact, the rise in female migration and the growing awareness of unaccompanied child migrants has brought to the fore a novel phenomenon: immigration-induced maternal separation.

An important research question is how immigrant children who experience maternal separation compare to those who do not. This line of inquiry moves the discussion away from differences between immigrants and natives and towards differences among immigrants. Additionally, research in this emerging area is important because of its implications for immigration policy and also for its theoretical value. The field of developmental psychology stands to gain more knowledge about maternal separation, and what effect it has on child development, by examining the relationship within the context of immigration.

Research in developmental psychology provides some reasonable expectations of how children may be affected by immigration-induced maternal separation. Instability in childhood, particularly frequent residential moves, is linked to poor socio-emotional outcomes for children (Ackerman, Kogos, Younstrom, Schood, & Izard, 1999; Fiese & Winter, 2010; Rumbold et al.,

2012). Although immigration is often a one-time event, it represents a significant disruption to an individual's life. Immigration is associated with changes in the social and physical environment, cultural differences, and in some cases a foreign language. Viewed in this way, child migrants sustain cumulative instabilities; they experience multiple disruptions, changes, and transitions, all of which have been linked to adverse cognitive (Fomby & Cherlin, 2007) and socio-emotional (Evans & Wachs, 2010) development outcomes. Moreover, separation from one or both parents has been linked to the development of psychiatric disorders, like suicidal behavior, anxiety, and depression (reviewed in Bowlby, 1979). Therefore, a reasonable hypothesis is that children who experience maternal separation in immigration may suffer deficits in their development because their immigration experience carries a double disadvantage. Given the linkages between socio-emotional and cognitive processes and their mutual influence on school readiness (Blair, 2002), there are expected differences in academic performance between immigrant children who experience maternal separation and those who do not.

Before opening the discussion on maternal separation in immigration, a contrast between historic and contemporary conceptions of migration must be made. E.G. Ravenstein informed initial theorizing on migration. He found that most migrations prior to the 20th century were confined to shorter distances and remained within national borders (Ravenstein, 1885). His conclusions reflects the global order of that time period, but is challenged in light of current migration trends that are characterized by vast immigration. The magnitude of recent immigration trends is underscored by population estimates on the proportion of foreign-born persons living in high-income countries (Solimano, 2010).

Another historical assumption was that women do not migrate. Women were assumed to play a reduced, if not entirely absent role in the process. Lee (1966) goes so far as to suggest that

female mobility was conditioned upon their spouses' decisions. He writes, "wives accompany their husbands though it tears them away from environments they love," (Lee, 1966, p.51). Current estimates of female participation in immigration debunk notions of an exclusively male-led process. The "feminization" of migration raises the question of how children are represented in the process. Similar to women, children received diminutive treatment; they were "carried along by their parents, willy-nilly," (Lee, 1966, p. 51). According to Orellana and colleagues, "this literature treats children, in effect, as luggage," (Orellana, Thorne, Chee, & Lam, 2001, p. 578). Children were assumed to be passive actors who typically experience family migration. As transitional families become more common (Dreby, 2010), these views loose credence. Many children are left behind when their parents migrate, while other children migrate prior to their family members (Adsera & Tienda, 2012).

Left-behind children have been documented in Mexico (Dreby, 2007; Dreby, 2010), Asia (Gamburd, 2008; Hewage, 2011; Parreñas, 2005), and the Caribbean and Latin American (Hondagneu-Sotelo & Avila, 1997; Olwig, 1999). Suárez-Orozco, Bang and Kim (2010) found a higher percentage of father-only separation among Mexican children, but the opposite was true for Dominican children, and mother-only separation was more common overall. In some regions, the incidence of left-behind children remains small. Orellana and her colleagues observed that left-behind children were uncommon among Middle Eastern families. Yemini participants "said they knew of no children who stayed behind after their mother migrated," (Orellana et al., 2001, p. 579). In light of these misconceptions, what can be said about the immigration experience for children? The main thrust of the argument being advanced is that children come from different regions and some incur maternal separation, which together may have consequences for their psychological and academic outcomes in the receiving country.

This thesis is structured in three parts. Part one reviews the literature, beginning with a historical examination of migration. Migration patterns of years past are quite different from those observed today, particularly in regards to international migration. Juxtaposing historical migration trends against recent immigration patterns, the paper sets the stage for the forthcoming discussion of women's participation in immigration. Recognition of women in immigration is critical for identifying a new group of immigrant children: children left behind. The literature on maternal separation provides theoretical grounding in an effort to better understand how it may exhibit itself in immigration. Left-behind children is one example of maternal separation in immigration and both require current research efforts, particularly for the way they vary from children of family migration and each other on behavioral, emotional, and educational outcomes. Part two presents the research methodology, empirical analyses, and results. Part three discusses the research findings, limitations, policy implications, and future research.

PART ONE

MIGRATION OVER TIME

The migration patterns observed over a century ago by E. G. Ravenstein vary distinctly

from those observed today. When Ravenstein espoused his "laws of migration" based on late 19th

century estimates of rural to urban labor migration in the United Kingdom (Ravenstein, 1885),

globalization, and specifically the global economic system, was not predicted. In recent history,

explanations of migration have evolved to captures its many forms, but exhaustiveness came at

the expense of distinctiveness. For example, Lee (1966) employs the following classification that

treats "a move across the hall from one apartment to another" as similar to "a move from

Bombay, India to Cedar Rapids, Iowa," (Lee, 1966, p. 49). Certainly, each process has

meaningful differences. Charles Tilly properly distinguishes between migration and mobility by

purporting the criteria for migration as (1) encompassing long distances and (2) severing social

connection to birthplace. Mobility was often confined to shorter distances and social ties were

maintained to one's place of origin (Tilly, 1978). The aim of this section is to highlight how

changes in the global system gave rise to immigration patterns seen today. In the interest of

space, this author will separate migration into three phases along a historical timeline. Each

phase represents successive approximation towards immigration.

Land occupation, encouraged by the search for food, represents the first phase of human

migration dating back to the beginning of time (McNeill, 1978; McNeill, 1984). Although

responsible for continental expansion, this movement was driven by the pursuit of resources and

simultaneously affected by demographic and climate changes (McNeill, 1978). It is not

important that a large distance was covered because the vast migration represented a culmination

of gradual movements spanning thousands of years. The intention was not to migrate. That this happened was simply a by-product of the quest for sustenance.

The second phase is characterized by nation-building efforts vis-à-vis European economic development. Fisher writes, "migration also became a prerequisite for some types of economic and social improvement," (Fisher, 2014, p.44). In fact, the decision to migrate in the period between the 16th and 18th century was regulated more by state policies than individual preferences, even for free persons (Zolberg, 1978). State restrictions to movement were relaxed only to accommodate the liberal economic market. Voluntary migration grew more common in the late 19th century (Manning, 2013), albeit with strict entry and exit policies (Zolberg, 1978). Early industrializers, like Great Britain, experienced the initial wave of intra-European labor migration (Castles & Miller, 2003). High mortality rates in the urban cities, caused by diseases, initiated significant out-migration (Fisher, 2014; Zolberg, 1978). Low fertility rates in Europe and improvements to travel contributed to migration flows of longer distances, moving towards global migration (Castles & Miller, 2003; Manning, 2013; Zolberg, 1978). However, xenophobia and nation-building efforts reintroduced restrictive immigration policies in the 20th century, increasing the tension between a desired homogeneous society and cheap, immigrant labor (Zolberg, 1978). Though migrations in Europe between the 16th and 20th century were mostly internal (Tilly, 1978), the use of migration for nation building and development served as an antecedent for international migration (Fisher 2014).

The globalization of migration, which stresses the relationship between migration and development, finds more countries participating in migration and introduces an increase of North-South migrations (Castles & Miller, 2003). The economic perspective attributes the rise in international migration to the growing income disparities between the global North and South

(Solimano 2010). According to Stolnitz, "what might be called the 'effective demand' globally for international migration is almost surely at a far higher level today than it has ever been in world history," (Stolnitz, 1978, p. 312). The relationship between migration and development is underscored here because it is argued that through migration, financial gains are possible for individuals and their families and sending and receiving countries (Acosta, Fajnzylber, & Lopez, 2007). A brief foray into micro and macro immigration theories show that economic considerations dominate explanations of migration.

The neoclassical microeconomic approach purports the principles of rationality and income maximization (Faist, 2000). Combined, the theory suggests that people are motivated to migrate if they expect greater wages abroad in exchange for their labor. A potential migrant engages in a cost-benefit analysis in order to determine whether immigration is the most efficient course of action (Massey et al., 1993). The macroeconomic neoclassical approach builds upon the previous theory by highlighting that wage differentials are produced as a result of an unequal distribution in the global supply and demand of labor (Harris and Todaro, 1970). Therefore, migration becomes a solution to the problem of variance in global economic development. The unevenness in economic development owes in part to an earlier migration phase, European colonization, not discussed in this section. Low-wage workers are mostly concentrated in the Global South. Advancements in technology and communication bring awareness of income inequalities to these workers and make attractive immigration to the Global North (Faist, 2000). With these motivations considered, it is unsurprising that the 21st century ushered in an unprecedented wave of international migration. Population estimates from 2013 show an unprecedentedly large migrant stock (UN Population Division, 2013). Though the global economic crisis negatively impacted the increase in global migrants, the average yearly increase

between 2000 and 2010 was roughly five million migrants compared to two million of the decade prior (UN Population Division, 2013).

In summary, this section has demonstrated the shift towards immigration over time. Albeit a crude measure, this author reduced the phases of migration to three parts. The first and third phases show that migration is a livelihood strategy for individuals, whether hunger-gathers searching for food or labors searching for higher wages. The second phase shows that voluntary immigration was not the norm and immigration policies have tended to be restrictive. This latter point is important to keep in mind as the discussion moves towards the incidence of prolonged separations in migration. Similarly, it is important to note that the globalization of migration is of particular interest because it provides the context in which to understand immigration-induced maternal separation. The next section concentrates on the role of women in immigration. Hitherto, a gender-neutral account of immigration has been offered. It was mentioned earlier that Ravenstein found women migrated in shorter distances. The next section will challenge this assumption.

THE FEMINIZATION OF MIGRATION

Many assumptions of migratory behavior remain; who participates in the movement across borders being chief among them. Nowhere is the conflict between historical assumptions and current trends more apparent than on this matter. Even though in the past females were found to migrate at rates equivalent to males, their participation was primarily within short term, internal migrations (Ravenstein, 1885). Ravenstein did not predict that women would come to occupy an increasingly strong presence in immigration. It was commonly believed that women played the role of secondary decision makers. This opinion was widely shared, so much so that Boyd and Grieco wrote, "In the 1960s and early 1970s the phrase 'migrants and their families'

was a code for 'male migrants and their wives and children,'" (Boyd & Grieco, 2003). Some states, like Australia, specifically precluded women from migrating on their own (Castles & Miller, 2003). The new economics of migration broadens the decision-making framework to include families and households. In families, individuals pursue migration to diversify risks and resources (Stark and Bloom, 1985) and secure the economic stability of the household (Massey et al., 1993). Faist (2000) aptly points out that the theory "does not consider the social embeddedness of potential migrants' behavior, (Faist, 2000, p.41). For instance, how do gender roles impact discussions and subsequent decision-making within the family?

It was shortsighted for earlier scholars to assign women a passive role in immigration. Recent trends provide evidence of increases in female immigration (UN OCED, 2013), and their active role in initiating the discussion within their families has been recognized (Asis, Huang & Yeoh, 2004; Dreby, 2010). Latin America and the Caribbean have nearly equal numbers of male and female migrants (Morrison, Schiff & Sjöblom, 2007). Though there appears to be a decline in Asian female migrants (UN Population, 2013), this is due the inclusion of West Asian counties that tend to have more traditional migration patterns. In other parts of Asia, such as China and the Republic of Korea, immigration is predominately feminized (Morrison et al., 2007).

The feminization of migration refers both to the rapid increase in female participation in international migration and the matching of their participation to males (Donato, 2006). As of 2013, 48% of international migrants are women, representing a two-percentage increase from 1960 (UN Population Division, 2013). To dismiss the magnitude of the phenomenon based on these estimates would be ill-advised, particularly because they capture the total stock of migrant women and does not distinguish between types of migrant women, such as female labor

migrants. In order to understand the uniqueness of recent trends, one must move beyond statistics that are often undercounted and require "improvements in data collection, dissemination and analysis," (Division for the Advancement of Women, 2006). Even if some female migrants can be characterized as dependents, there is an increase in women migrating as chief wage earners for their families (Division for the Advancement of Women, 2006). On average, half of the total migrant stock from Latin America and the Caribbean is female. In some countries, like the Dominican Republic, the mean is much higher (Solimano 2010).

As previously mentioned, South-North migration is increasing and this is also being observed among female migrants. In 2013, 52% of female migrants were in the global North compared to 43% in the global South (UN OCED, 2013). This latter point underscores that global wage disparities also affect women and international labor migration is no longer exclusively male. Samonte (2003) found that Filipino women are migrating abroad, fulfilling positions as entertainers, domestic labors, and factory workers and international migration is no longer an exclusively male process. That Filipino women should occupy employment in the domestic sector is neither coincidental nor inconsequential.

Women play a fundamental role in reproductive labor. Manning's framework of home-community migration emphasizes how this role transfers to the migration process (Manning, 2013). Feminist scholars have commented on the New International Division of Labor in the global economy and its relationship to female immigration (Federici, 1999). Federici specifies that female participation has increased since the 1990s when the demand for domestic workers in international market increased. Women need to participate in international migration because of low wages offered in the industrial sector, namely Free Trade Zones, which were introduced by neoliberal regime under the guise of gender empowerment (Federici, 1999). Indeed, she is not

the first to remark on the global care regime (see Ehrenreich & Hochschild, 2004 and Yeates, 2009 for review). Women from developing countries are working in professions that "requires that they take care of other people's families while they have to leave their own behind," (Federici, 1999, p. 72). Here the consequence of female immigration for children takes center stage. Migrant mothers are fighting with a double-edge sword. For the betterment of their children and families they pursue migration, but they find themselves separated from their loved ones for significant durations (Gündüz, 2013).

MATERNAL SEPARATION

Much of what is known about maternal separation comes from John Bowlby's work. In "Attachment and Loss," he details the trajectory of attachment behavior in humans and the defining features of the attachment system (Bowlby, 1969). By three months, the first signs of attachment behavior are evident when the infant displays perceptual discrimination towards the mother, meaning they spend greater time gazing at their mother compared to others. However, not until infants are about nine months and their motivations become clearer does the attachment behavioral system take shape (Bowlby, 1969). The attachment system is activated when the infant is confronted by a brief separation from their primary attachment figure, who in most cases is the mother (Bowlby, 1969). This separation is met with significant distress and so Bowlby offers proximity maintenance as a fundamental component of attachment behavior (Bowlby, 1969).

Attachment bonds are not limited to one person. Indeed, by age two most infants have multiple attachment figures and this does not weaken any existing bonds. However, even though attachment to others occurs, an infant's attachment to the mother is developed earlier and is often stronger and more consistent (Bowlby, 1969). Attachment theory helps us appreciate why

maternal loss would be felt very deeply. What is also interesting about this work is that a brief separation is shown to elicit distress among infants. This begs the question, what are the effects of prolonged maternal separation on child development?

The research on parental separation is quite clear. Prolonged parental separation in childhood is associated with the risk of developing depression, agoraphobia and panic disorders in adulthood (see Mikulincer & Shaver, 2007 for review). One noteworthy cross-cultural study using data from the World Health Organization investigated the relationship between childhood adversities and the on-set of a DSM-IV disorder (Kessler et al., 2010). Childhood adversity included traumas such as, parent loss, economic disadvantage, and sexual abuse. Parent loss constituted one of the following characterizations: death, divorce, foster care, adoption, leaving home before age 16, attending boarding school, parents never cohabiting, and "other." This retrospective survey was conduced in 21 countries and examined mood, anxiety, behavior, and substance disorders. Although analyses did not include the effect of childhood adversity type on mental illness, significant associations were found between all adversities and mental health disorders. In particular, results showed that if all childhood adversity were eliminated, there would be a roughly 30% reduction in all disorders. Some of the countries included in the paper, like Mexico, experience significant out-migration and it is reasonable to expect that some cases of parental loss were immigration related separations.

Common reasons for prolonged separation include death or divorce (Rutter, 1972). Missing from the discussion, and understandably so given the date of publication, is immigration-induced separation. Children who experience prolonged maternal separation are at greater risk of developing psychopathology and so there is urgent need to examine this phenomenon within the immigration context.

MATERNAL SPERATION IN THE CONTEXT OF IMMIGRATION

Immigrant families face prolonged separations during the migratory process due to postponed reunification (Zhou, 1997), financial restrictions (Dreby, 2010), and other factors. Husbands are separated from wives, parents from children, and brothers from sisters. Maternal separation due to U.S. immigration was rare at the turn of the 21th century (Robles & Watkins, 1993). The global female migrant stock in 1960 and 2000 was 46.6% and 48.8%, respectively. In North America, the female migrant stock rose from 49.8% in 1960 to 51.0% in 2000 (Zlontnik, 2003). Still, the main category of migrant flows remains family reunion or reunification. In 1999, 80% of the U.S. immigrant flow was categorized as family reunification (Continuous Reporting System on Migration, 2001). Among the U.S. immigrant stock, women are more likely to have migrated as a spouse, indicating a propensity towards male-led immigration (Martin, 2004). On the other hand, today, "a generation of children has grown up without their mothers at their sides" (Gündüz, 2013, p. 37). The United States now attracts more female labor migrants than any other labor-importing country, typically from Asia, Central and South American, the Caribbean and Europe (Hirschman, Kasinitz, & DeWind, 1999). Therefore, the children most affected by this kind of maternal separation are those from developing countries. Maternal separation due to death, or in some cases divorce, occurs universally, but immigration-induced maternal separation disproportionately affects children from the Global South. Much of the evidence supporting this phenomenon originates in the U.S.-Mexico migration stream and China's rural to urban migration.

Women initiating migration alone now constitutes a substantial number (Mena, Mitrani, Muir & Santisteban, 2008), growing increasingly more popular for Mexican women who historically immigrated to the United States under the auspices of family reunification (Denmark,

Eisenberg, Heitner & Holder, 2003). By the 1970s, a new immigration stream became evident; women were now immigrating without their children. In the Philippines, children left behind constitute 27% of the youth population (Parreñas, 2005). There is no data specifically detailing what percentage of this represents children with mothers abroad. However, among migrants from the Philippines, women constituted more than half of the population in the OECD countries during fiscal year 2010-2011 (UN Population Division, 2013). It is reasonable to deduce that at least 13.5% of Filipino children are living apart from their migrant mothers. Suárez-Orozco, Bang and Kim (2010) showed, using data from the Longitudinal Immigrant Student Study, anxious and depressive symptoms were related to children's separation from caregivers during immigration.

In China, urban employment opportunities incentivize migration from the rural areas. Chinese citizenship rights prevent families from moving as a unit and an estimated 58 million children were left behind in 2009 (Jinzhong & Lu, 2011). Studies found that visitation between migrant parents and left-behind children were infrequent. Over 50% of children reported that their mothers and fathers visited about once a year. Even more striking was the decrease in children reports of mother and father being most important in their lives; grandparents replaced parents. Overall, Wen and Lin (2012) found that mother-only migration was more detrimental to children's health, wellbeing, and school engagement than father-only migration. The authors suggest that lack of familial support for mother's migration is chiefly related to children's outcomes.

To be sure, others have concluded that the gender norms that operate outside of migration are re-expressed within the migration process because children maintain traditional views of motherhood and fatherhood (Dreby, 2010; Parreñas, 2005); namely, mothers are responsible for

care and nurture while paternal support is achieved through economic provision. As a result, maternal migration is often appraised more critically than paternal migration, with children expressing both negative feelings and dissatisfaction towards their migrant mothers (Gündüz, 2013). Fathers who remain when their migrant wives are abroad are sometimes unemployed and dependent on their wives' remittances. This can lead to feelings of emasculation, shame, and resentment (Gamburd, 2004). Migrant mothers are therefore placed in a quandary (Parreñas, 2005). It is unsurprising that children hold such gendered views of parenthood. One study of children age six to 12 found that "mothers are mentioned more frequently than fathers in instrumental and emotional terms," (Milkie, Simon and Parrell, 1997, p. 225). Therefore, on the one hand, female migration is growing in prevalence and has altered gender norms— mostly that women now initiate migration in order to provide for their family— yet on the other, gender norms and ideas about care and household responsibilities continue (Gamburd, 2008).

Views on motherhood are developed in context and for that reason children's reactions to female migration may vary by country or region. Even though in the Mexican family structure a machismo culture is perpetuated, mothers are idealized for their sacrifices. Dreby (2007) shows that children left behind in Mexico express feelings of abandonment and often act out in ways that show disapproval of their mother's decision. Given the nature of American immigration policies, prolonged absences are common yet often unanticipated. Among West Indians, there is a strong history of matriarchal families (Denmark et al., 2003). In both these cases, maternal separation is likely to be felt quite strongly. For Cuban families, in contrast, who tend to exhibit a nuclear family structure, it is probable that children do not endure as much maternal separation and may feel the separation in a different way.

Another type of maternal separation occurs when children initiate immigration (Orenella et al., 2001; Adsera & Tienda, 2012). Much less is known about this type of migration (Lee, 2006); it is difficult the estimate the number of cases because reasons for child migration are often unclear or unstated (Adsera & Tienda, 2012; Zhou, 1998). What work has been done centers on "parachute kids". Parachute kids refers to children, typically from affluent Asian families, who immigrate to the United States with the purpose of enrolling in American schools to increase their chances of attending American tertiary institutions (Orenella et al., 2001). Taiwan is one of the largest contributors to this phenomenon, sending 37,000 primary and secondary school children between 1983 and 1993. In 1997, a Korean official estimated that 7,000 Korean unaccompanied minors were enrolled in American schools, mostly in Southern California (Tsong & Lui, 2009). Although this deviates from the previous pattern of maternal separation, there are several reasons this type of migration may also have deleterious outcomes for children.

First, parachute kids tend to immigrate at a young age (Newman & Newman, 2009). Drawing upon Bowlby's attachment theory, it is expected that separation from primary attachment figure, especially at a young age, would incite anxiety and distress (Bowlby, 1982). Parachute kids experience a fair deal of autonomy in the sense that they enjoy very little supervision (Zhou, 1998). However, this may undermine the intent of their migration, which is to achieve academic success and later economic mobility. Lack of supervision, especially in regards to schoolwork, was associated with educational difficulties for children left behind (Jingzhong & Lu, 2011). Binci (2012) argues a similar point when she concluded that the benefits of remittances for children left behind do not counterbalance the parental oversight and care necessary to ensure children's wellbeing and the academic success. She argues that even though

international migration often produces greater economic gains, the benefit of internal migration is closer parent-child relationships and this cannot be discounted. Similar results may be observed with parachute kids. Although the affluence of their families increases the odds of visitation, this is a tenuous expectation given the economic situation of developing countries is unpredictable (Orenella et al., 2003). By and large, the chief defense for including parachute kids in assessments of migration-induced maternal separation is that they, like children left behind, experience instability in childhood that are associated with poor wellbeing and adjustment (Cavanagh & Huston, 2008; Fomby & Cherlin, 2007). Therefore, this paper will explore the emotional and academic consequences of maternal separation for left-behind and parachute children.

PART TWO

STUDY AIMS AND HYPOTHESES

The current focus in the literature is how immigrant children are "faring" in the United States (Suarez-Orozco & Suarez-Orozco, 2001), a limited consequence-driven approach. The problem with this concentration is that it fixes the immigrant in two spaces: in the sending country and in the host country. As a point of entry, this papers commands an ABC characterization of immigration. Such characterization is a nod to B.F. Skinner's three-stage model of operant conditioning: the antecedent of behavior, the behavior, and the consequence of the behavior (Skinner, 1938). In the case of immigration, the antecedent (A) includes the country of origin, the decision-making analysis, resources, etc. The behavior (B) is the immigration experience. Notice here the word choice. Immigration is not considered an action in the physical sense, moving from point A to point B; instead, immigration is considered an experience in order to acknowledge its various forms. The consequences of immigration (C) are evaluated along educational and psychological dimensions.

The paper is motivated by the following question: what are the consequences of immigration-induced maternal separation for children's socio-emotional and academic outcomes? To answer this question, the ABC framework will be utilized. The study will consider one antecedent factor (A), sending region, the immigration experience (B), and how the interaction of these two (A*B) affect the resultant consequence (C), socio-emotional and academic outcomes. In other words, by redefining the conception of immigration to account for the unique influence of each experience, one receives a better lens through which to analyze how immigration children are adjusting in the United States. An antecedent-driven approach examines the differences between immigrant children prior to their arrival in the United States

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and contributes to the literature in two ways. First, it provides estimates on the prevalence of each immigration experience, informing scholars of the countries that show a pattern of maternal separation in immigration and those that display traditional sending patterns of family migration. Also, an antecedent-driven approach assesses whether these kinds of pre-arrival factors impact immigrant children's outcomes.

Using data from the Children of Immigrants Longitudinal Study (Portes & Rumbaut, 2001), this paper will compare children of family, left-behind and parachute migration across various sending regions on measures of behavioral and emotional adjustment and academic performance. The main hypotheses are that left-behind and parachute children will demonstrate poorer psychological wellbeing and academic performance than children who experience family migration. Children left behind are predicated to have the poorest outcomes. There is a presumed hierarchy: child of family migration have the best outcomes, parachute children are somewhere in the middle, and left-children face the most deleterious outcomes. These hypotheses are motivated by the assumption that maternal separation is harmful for children. It is also assumed that mother leaving first, as is the case in the left-behind children group, is more distressing than the child leaving first.

METHOD

<u>The original sample</u>

Secondary data are from the Children of Immigrants Longitudinal Study (CILS), directed by Alejandro Portes and Ruben G. Rumbaut (Portes & Rambaut, 2001). The study sampled 5,262 children of immigrants between 1991 and 2006 in two Florida cities, Ft. Lauderdale and Miami, and one Californian city, San Diego. To be eligible for the study, children were either U.S. born with at least one foreign-born parent or have lived in the United States for a minimum

five years with at least one foreign-born parent. All foreign-born children were pre-adolescence (none were older than 12 years old) at U.S. arrival. Seventy-seven nationalities were represented, but immigrants differed in terms of where they settled in the United States. For instance, Caribbean immigrants, including Cubans and West Indians, were largely concentrated in South Florida. Asian immigrants, such as Filipinos and Laotians, were mainly found in California. Participants began the study in adolescence (M = 14 years old) and concluded in emerging adulthood (M = 24 years old). Children and their families were interviewed at three time points; first in 1992, again in 1995, and for the last time in 2002. At the third wave of data collection, about 70% of the sample was retained. CILS examined major themes affecting the second-generation, such as adaptation and acculturation, parent-child relations, ethnic identity, academic achievement and occupational outcomes. For more information on the study methodology and results, please see (Ha, 2005; Portes & Rambaut, 2005).

Coding of independent variables

This study utilized the year of U.S. arrival for mother-child dyads to create the main independent variable *immigration experience,* consisting of children left behind, parachute kids, and children of family migration. In this study, *family migration* is understood as children who immigrated to the United States with their mothers. Family migration serves as the comparison group because it reflects traditional immigration experiences for children— no maternal separation—and are hypothesized to have the least negative outcomes. The two immigration types that engendered maternal separation were the experimental groups. *Children left behind* refer to children whose mothers immigrated to the U.S. first. *Parachute children* refer to children who immigrated to the U.S. first. Three inclusion criteria were employed in order to most aptly

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characterize each child: (1) Respondent's country of birth must be outside the United States[1] (2) Mother's U.S. length of stay could not be greater than respondent's age as this reflects a potential pattern of circular migration that may interfere with study aims[2] (3) Respondent must live with mother at the time of first interview.[3]

The length of stay in the U.S. was calculated for mothers and children by subtracting the year of first data collection (1992) from their year of arrival. The child's U.S. length of stay was then subtracted from the mother's U.S. lengths of stay. A positive result indicated the child came to the U.S. before the mother (parachute group). A negative result indicated the child came to the U.S. after the mother (child left behind). A zero result indicated mother and child migrated together.

Two variables provided information on mothers' year of arrival. In the original study, children were asked at time one: "(If mother born in a foreign country) In what year approximately did she come to the United States?" During the follow-up interview at time two, mothers were asked: "In what year did you arrive to live permanently in the U.S.?" Because

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[1] The number of US-born children in the sample totaled 2,632 (50% of the original sample). These children were excluded along with four cases of children missing information on birth country.

[2] The number of foreign-born children excluded for potential confounding of circular migration totaled 140.

[3] The number of foreign-born children excluded for not living with their mother at first interview totaled 199.

slight discrepancies in responses were produced, the mother's response to the question was given preference. In the event of missing data, the children's responses were selected.

Two variables also provided information on children's year of arrival. At time one, children were asked, "how long have you lived in the U.S.?" to which they could respond: "all my life", "10+ years", "5-9 years", "less than five years." A coding scheme was developed in order to determine immigration experience. If respondent reported 'all my life' and mother's US length of stay was less than child's age then child was assigned to the parachute group. On the other hand, if respondent reported "all my life" and mother's US length of stay was equal to child's age, then child was assigned family migration. Two children were added to each group using this coding. If respondent reported "10+ years" and mother's US length of stay was less than ten years, then child was assigned to the parachute group. Seven children were added using this coding. If respondent reported "5-9 years" and mother's US length of stay is less than five, then the child was assigned to the parachute group. On the other hand, if respondent reported "5-9 years" and mothers US length of stay was greater than nine, then child was assigned to the group of children left behind. Six children were added to the parachute group and 54 added to the children left behind group using this coding. If respondent reported "less than five years," and mothers' length of stay was greater than five, then child was assigned to children left behind group. Ten children were added to child left behind group using this coding. At time two, children were asked: "(If you were born in a foreign country) In what year did you come to the United States?" In addition to the excluded cases detailed above, some cases of foreign-born

children were not included in this study's sample because information on length of U.S. stay was lacking.[4]

Length of separation was calculated for those children who endured separation in immigration by taking the difference of child U.S. length of stay and mother U.S. length of stay.[5] *Age of separation* was calculated by subtracting mother's year of arrival from child's birth year. Previously mentioned exclusion criteria remain operative. Sending region was determined using children's country of birth. This information was organized in the following manner: *Asia, Caribbean, Central America, and South America*. Children from countries in other regions were excluded for small sample sizes: Africa (n = 3), Europe (n = 15), North America (n = 14), and the Middle East (n = 8).

Behavioral outcome variables

Perceived problem behavior was derived from responses to the following: "I am seen as a trouble maker by other students." Responses were four-point agreement scale, "Agree a lot," "Agree a little," "Disagree a little," "Disagree a lot."

Fighting behavior was derived from responses to the following: "During this current school year, how many times did any of the following things happen to you at school? I got into

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[4] The number of foreign-born children missing information on length of stay in the United States is 241. The number of mothers missing information on length of stay in the United States is 275. The number of cases where both mother and child were missing information on length of stay in the United States is 153.

[5] This variable could only be calculated for mother-child dyads with numerical data on length of stay in the United States.

a physical fight at school." Responses were three-point scale, "Never," "Once or twice," "More than twice."

Emotional outcome variable

Four items from the Center for Epidemiologic Studies Depression Scale (CES-D) measured negative emotionality (Radloff, 1977). The questions (1) This past week, I felt sad (2) This past week, I could not get going (3) This past week, I did not feel like eating (4) This past week, I felt depressed were scored according to whether respondents reported feeling this way 'rarely' (1 points), 'some of the time' (2 points), 'occasionally' (3 points), and 'most of the time' (4 points). Respondents' points were averaged; high averages indicating high levels of depression. The Cronbach's alphas for the four-item CES-D used at the initial and follow up are .74 and .76, respectively.

Education outcome variables

Grade point average was assessed in 1992 (T1 GPA) and again in 1995 (T2 GPA) by school records. *Dropout behavior* was assessed in 1995 also by child's school records. *High school diploma* was reported in early adulthood when respondents answered "yes" or "no" to the following question: "What degree or diplomas have you received? High school diploma?" *GED/HS equivalency* reported in early adulthood when respondents answered "yes" or "no" to the following questions: "What degree or diplomas have you received? GED or high school equivalency degree?"

RESULTS

One thousand six hundred and twenty children in the data matched study criteria.[6] Nine hundred and forty-three children experienced family migration (58.2%). Three hundred and sixty-one children were left behind (22.3%) and three hundred and sixteen were parachute children (19.5%). There were slightly more girls (54.5%) than boys (45.5%), but no significant association between immigration experience and gender was found, $\chi^2(2) = 1.628, p = .443$).The average age was 14.42 ($SD = .859$). Table 1 shows the classification of respondents' country of origin by sending region. Totals are provided per country of origin and sending region.

Table 1.

List and frequency of respondents' country of origin by sending region.

Sending region	Country of origin	*n*
Africa	Nigeria	1
	Other Africa	1
	South Africa	1
Total		3
Asia	Bangladesh	1
	Cambodia	61
	China	7
	India	5
	Hong Kong	7
	Japan	8
	Korea	5
	Laos	117
	Malaysia	1
	Philippines	181
	Taiwan	13
	Thailand	60
	Vietnam	198
Total		664
Caribbean	Bahamas	16
	Barbados	1

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[6] The original sample contained 5,262 children. After accounting for study criteria and missing data, 3642 cases were removed from data analysis.

	Cuba	247
	Dominican Republic	14
	Grenada	1
	Haiti	42
	Jamaica	51
	Other Caribbean	5
	St. Kitts	2
	St. Vincent	1
	Trinidad & Tobago	4
Total		384
Central America	Belize	1
	Costa Rica	4
	El Salvador	14
	Guatemala	9
	Honduras	20
	Mexico	146
	Nicaragua	214
	Panama	4
Total		412
Europe	France	1
	Germany	3
	Greece	1
	Ireland	1
	Italy	1
	Romania	1
	Spain	4
	United Kingdom	3
Total		15
Middle East	Iran	2
	Kuwait	1
	Pakistan	3
	Syria	1
	Turkey	1
Total		8
North America	Canada	12
	Other North America	1
	Puerto Rico	1
Total		14
South America	Argentina	14
	Bolivia	1
	Brazil	3
	Chile	8
	Colombia	58
	Ecuador	9
	Guyana	2
	Other South America	2
	Peru	12
	Uruguay	1

		Venezuela	10
Total			120
Grand Total			1620

Table 2 shows the sample sizes for sending region by immigration experience.[7] The majority of children were of Asian origin and the minority of South American origin. The Caribbean and Central America had roughly equivalent representation. Across regions, family migration was the most common immigration experience for children in this sample. However, when the largest sending countries per region were isolated, a more nuanced picture of children's immigration experience was produced.

Table 2.

Totals and percentages of sample size by immigration experience and sending region.

Sending Region	Immigration Experience N (%)			
	Family Migration	Child Left Behind	Parachute	Total
Asia	412 (*62.05*)	130 (*19.58*)	122 (*18.37*)	664 (*42.02*)
Caribbean	258 (*67.19*)	71 (*18.49*)	55 (*14.32*)	384 (*24.30*)
Central America	194 (*47.09*)	122 (*29.61*)	96 (*23.30*)	412 (*26.08*)
South America	60 (*50.00*)	29 (*24.16*)	31 (*25.83*)	120 (*7.60*)
Total	924 (*58.48*)	352 (*22.28*)	304 (*19.24*)	1580 (*100.00*)

Asia

The largest sending country in Asia was Vietnam. The most common immigration experience was family migration (61.61%). The second most common immigration experience for Vietnamese children was parachute migration (24.24%). The least common immigration experience was left-behind children (14.14%). In contrast, the Philippines showed a greater

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[7] The sample size decreased to 1,580 children when Africa, Europe, North America, and the Middle East were excluded from statistical analyses for small sample sizes.

proportion of left-behind children (30.39%) compared to parachute migration (11.60%). Family migration was still the most prevalent immigration experience (58.01%) for Filipino immigrant children.

Caribbean

Cubans represented the overwhelming majority of Caribbean child migrants. Of the 247 Cuban children who experienced immigration, 88.26% of them arrived to the U.S. with their mothers. Jamaica was the second largest sending country in the Caribbean and displayed somewhat equivalent immigration experiences: 39.22% family migration, 33.33% children left behind, and 27.45% parachute migration. Haiti was the third largest sending country in this region and showed a striking pattern. Thirty-one of the 42 Haitian immigrant children were left behind (73.81%). About one percent of Haitian children migrated with their mothers, and roughly 16% of Haitian children were of parachute migration.

Central America

Half of the child migrants from Central America were Nicaraguan. Family migration constituted 59.81% of the immigration experience, but equivalent numbers of left behind and parachute children were observed (20.09% each). Mexico was the second largest sending country from Central America. There was no dominant immigration experience for Mexican children; 37.67 % children were left behind, 34.93% children migrated with their mothers, and 27.40% were parachute children.

South America

Compared to the other three sending regions in the analysis, South America possessed a much smaller sample size. For this reason, Columbia was the largest sending country in South

America. Fifty percent of the child migrants were of family migration, 25.86% were parachute children, and 24.14% were children left behind.

Length of maternal separation.

Prolonged separation is often an unanticipated aspect of migration. The data enabled some estimation of the amount of time mothers and children were separated due to immigration ($n = 622$). The mean length of separation for mother-child dyads was 2.250 years ($SD = 2.048$) or 27 months. Children left behind ($n = 320$) were separated from their mothers on average 2.538 years ($SD = 2.173$) or approximately 30 months. Parachute children ($n = 302$) had an average length of separation of 1.937 years ($SD = 1.862$) or roughly 23 months.

Both the left behind and parachute immigration experiences had positively skewed distributions. Q-Q plots also showed that the assumption of normality was violated. A Mann-Whitney U test determined if differences existed in the separation lengths of left behind and parachute children. Distributions of the separation lengths for left behind and parachute were similar, as assessed by visual inspection. Maternal length of separation was significantly longer for left behind children ($Mdn = 1.50$) than parachute children ($Mdn = 1.00$), $U = 40145.500$, $z = -4.041$, $p < .001$.

Before conducting analyses on mother-child separation lengths by region ($n = 548$), boxplots were inspected for the presence of outliers. A new variable of separation length with the most extreme scores by regions removed was created.[8] Two ANOVAs were conducted, one with outliers and another without. Results showed that both models were significant; the model with

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[8] The top six extreme separation lengths in the Asian group were removed: 13, 10, 9, 9, 8, and 8. The top four cases of extreme separations lengths in the Central American group were removed: 12, 10, 10, and 10. Two cases of 12-year separations were removed in the Caribbean group.

outliers, $p = .002$ and the model without, $p < .001$. Outliers were kept for subsequent analyses.

Shapiro-Wilk's test of normality revealed length of separation was not normally distributed

across region groups, $p < .05$. A sensitivity analysis was conducted. The results of the Kruskal-

Wallis H-test were significant $p = .003$ and the one-way ANOVA was significant, $p = .017$ level.

Findings from the Kruskal-Wallis H-test are reported.

Table 3 shows the overall length of separation across regions and length of separation by

region and immigration experience. The length of separation was significantly different across

sending regions, $\chi^2(2) = 11.832$, $p = .003$. Pairwise comparisons were determined using

Bonferroni adjustment; the adjusted p-values are reported. The length of maternal separation was

significantly different between children from Asia and those from the Central America ($p = $

.041). There was also a significant difference between length of maternal separation between

children from Asia and those from the Caribbean ($p = .005$). On average, Asian children were

separated from their mothers for less time.

Table 3.

Length of separation by immigration experience and sending region.

Region	Separation length in Years M(*SD*)		
	Left Behind	Parachute	Total
Caribbean	3.24 (*2.36*)	2.06 (*1.99*)	2.68 (*2.26*)
Asia	2.17 (*2.14*)	1.89 (*2.11*)	2.03 (*1.95*)
Central America	2.60 (*2.23*)	2.06 (*1.91*)	2.42 (*2.15*)
Total	2.59 (*2.23*)	1.98 (*1.91*)	2.30 (*2.10*)

Note. South America ($n = 54$) was removed from analyses for small sample size. Sample size of included regions is: Caribbean (n = 111), Asia (n = 239), and Central America (n= 198).

Within the group of left-behind children, length of maternal separation was not normally

distributed by sending region as assessed by Shapiro-Wilk's test of normality ($p < .05$). A

sensitivity analysis showed that both the ANOVA ($p = .001$) and the Kruskal-Wallis ($p < .001$)

were significant. The results of the Kruskal-Wallis test are reported. The length of maternal

separation for children left behind was significantly different across sending regions, $\chi^2(2) =$ 16.814, $p < .001$. The length of maternal separation was significantly different between children from Asia and Central America, $p = .010$ and children from Asia and the Caribbean, $p < .001$. Length of separation was not normally distributed across sending regions for parachute children as assessed by Shapiro-Wilk's test of normality ($p < .001$). The length of maternal separation for parachute children was not significantly different across sending regions, $\chi^2(2) = .133$, $p < .936$.

Age at maternal separation.

The mean age at maternal separation ($n = 580$) was about six years of age ($M = 5.766$, $SD = 3.464$). The average age at maternal separation for children left behind was about five years of age ($M = 5.312$, $SD = 3.247$). Parachute children were separated from mothers around six years of age ($M = 6.290$, $SD = 3.636$). There was a statistically significant difference in mean age of separation between children left behind and parachute children, $t(-3.394) = 542.212$, $p < .001$). The mean age at separation for children left behind was almost 12 months lower than the mean age of separation for parachute children, .978, 95% CI [-1.544 to -.412].

Table 4 presents descriptive statistics of age at separation by sending region and immigration experience. A Kruskal-Wallis test examined age at separation by sending region. Boxplot examination revealed no outliers. Shapiro-Wilk test showed the data was not normally distributed, ($p < .05$). The age at separation was significantly different across sending region, $\chi^2(2) = 8.651$, $p = .013$. There are significant differences between the age at separation for Caribbean and Central American children, $p = .016$. Within children left behind, there were no significant differences in age at separation by sending region, $\chi^2(2) = 5.647$, $p = .059$. A similar null finding was found within the parachute immigration experience, $\chi^2(2) = 3.635$, $p = .162$.

Table 4. *Age at separation by immigration experience and sending region.*

Region	Age at separation M(*SD*)

	Left Behind	Parachute	Total
Caribbean	4.54 (*2.94*)	5.82 (*3.32*)	5.10 (*3.16*)
Asia	5.38 (*3.52*)	6.11 (*4.04*)	5.73 (*3.79*)
Central America	5.86 (*3.18*)	6.85 (*3.55*)	6.30 (*3.38*)
Total	5.39 (*3.31*)	6.32 (*3.75*)	5.82 (*3.54*)

Note. South America ($n = 50$) was excluded from analyses for small sample size relative to other regions. Caribbean ($n = 100$), Asia ($n = 239$), and Central America ($n = 198$).

Age to United States.

The mean age to the United States was 6.28 years old ($SD = 3.71$). Table 5 shows the mean age to the U.S by immigration experience and sending region. Left-behind children showed the oldest age to U.S. ($M = 7.99$, $SD = 3.42$), and parachute children showed the youngest, ($M = 4.95$, $SD = 3.47$). Children from the Caribbean arrived to the U.S. at the youngest age, ($M = 5.18$, $SD = 3.04$), and children from Central America arrived at the oldest age, ($M = 7.04$, $SD = 3.55$). However, the marginal means were somewhat misleading and cell means hinted at a possible interaction.

Table 5. *Age to U.S. by immigration experience and sending region.*

Region	Age to U.S. M(*SD*)			
	Family Migration	Left Behind	Parachute	Total
Caribbean	4.62 (*2.57*)	8.10 (*3.01*)	4.64 (*3.38*)	5.18 (*3.04*)
Asia	6.75 (*4.21*)	7.70 (*3.84*)	4.74 (*3.63*)	6.56 (*4.14*)
Central America	7.02 (*3.35*)	8.48 (*3.22*)	5.30 (*3.62*)	7.04 (*3.55*)
South America	6.00 (*2.99*)	6.87 (*2.63*)	5.29 (*2.48*)	5.98 (*2.82*)
Total	6.16 (*3.69*)	7.99 (*3.42*)	4.95 (*3.47*)	5.98 (*3.72*)

A two-way ANOVA was conducted to explore an interaction effect between immigration experience and sending region on children's age to the United States. Four outliers were present

in the data.[9] Outliers were kept in the final analyses because they did not affect the significance of the model. The residuals were not normally distributed, as assessed by Shapiro-Wilk's test (p < .05). Homogeneity of variances was violated, p < .001.[10]

There was a significant interaction between immigration experience and sending region on children's age to the United States, $F(4, 1399) = 71.065$, $p < .001$, partial $\eta^2 = .016$. Significant mean differences in age to United States was found by sending region for children who experienced family migration, $F(2, 1339) = 35.434$, $p < .001$, partial $\eta^2 = .048$. There were statistically significant mean differences in age to United States between Caribbean children of family migration and Asian and Central American children of family migration. Caribbean children of family migration came to the United States 2.134 years younger than Asian children of family migration, $p < .001$ and 2.405 years younger than Central American children of family migration, $p < .001$.

The mean age to the United States varied significantly by immigration experience for children from the Caribbean, $F(2,1399) = 23.655$, $p < .001$, partial $\eta^2 = .033$, Asia, $F(1,339) = 22.228$, $p < .001$, partial $\eta^2 = .031$, and Central America, $F(2, 1399) = 19.373$, p < .001. Caribbean left behind children arrived to the United States 3.485 years older than children of family migration, p < .001 and 3.467 years older than parachute children, p < .001. Asian parachute kids arrived to the United States 2.013 years younger than family migration, $p < .001$,

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[9] Outliers were three children of family migration from the Caribbean who migrated at age 11 and one who migrated at age 12.

[10] Log transformation of the dependent variable did not affect the significance of the model or correct the violation of homogeneity.

and 2.965 age younger than left-behind children, *p* < .001. Central American left-behind children

arrived to the United States 1.461 years older than family migration, *p* = .002 and 3.186 years

older than parachute children, *p* < .001. Figure 1 highlights these significant findings.

Figure 1. Interaction effect of immigration experience and sending region on age to United States
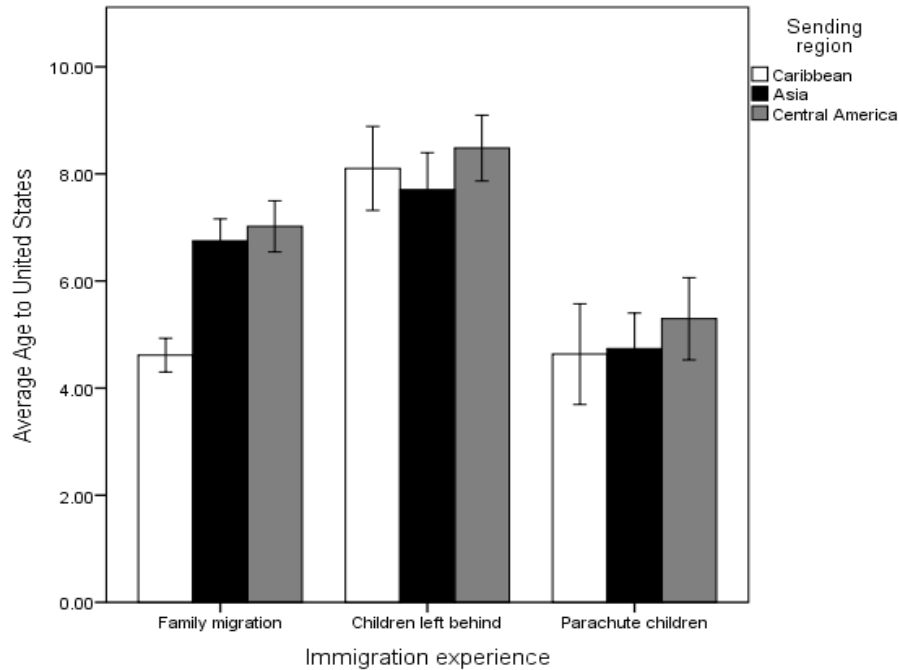
Education outcomes.

The data provided information on 1,606 children's grade point averages in 1992 (T1

GPA) and 1995 (T2 GPA); Nine hundred and thirty-five of these children were of family

migration, 357 were children left behind, and 314 were parachute children. Table 6 presents the

mean GPA and standard deviation for immigration experience over time. Children who

emigrated to U.S. with their mothers have the highest mean GPA scores at both time points.

GPA scores decreased across all groups in 1995.

Table 6. Mean grade point averages by immigration experience and year

Immigration experience	TI GPA (1992)	T2 GPA (1995)
Family migration	2.75 (*.88*)	2.66 (*.94*)

Children left behind	2.65 (.*89*)	2.58 (.*93*)
Parachute child	2.66 (.*87*)	2.54 (.*97*)
Total	2.71 (.*88*)	2.62 (.*95*)

Planned Comparisons

The first a priori contrast tested H_a: A-B, where A is the mean GPA (both time points) of

children of family migration and B is the mean GPA of left behind children. The second priori

contrast tested H_a: (B+C)/2 – A, where A is the mean GPA of children of family migration, B is

mean GPA of left behind children, and C is the mean GPA of parachute children. The weights

were applied to the three group means as follows:

	Family Migration	Left Behind	Parachute
Contrast 1:	1	-1	0
Contrast 2:	-1/2	-1/2	1
Contrast 3:	1	-1/2	-1/2

An ANOVA tested the differences in T1 GPA and T2 GPA by immigration experience.

Boxplot examinations of T1 GPA revealed five outliers.[11] A sensitivity analysis was conducted

between the model with outliers and another with outliers removed. Both models produced

similar results. Results are reported from the model without outliers. Levene's Homogeneity of

variance was observed, $p = .849$. The omnibus model was not significant for T1 GPA scores,

$F(2, 1598) = 2.772$, $p = .063$. Planned contrasts showed support for hypothesis one. T1 GPA

scores between children of family migration and left behind children were significantly different,

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[11] In the family migration group, the following four data points were removed: .17, .25, .25, and

.00. In the children left behind group, one data point was removed: .00. No outliers were detected

in the other two groups.

t(1598) = -2.002, *p* = .046. Family migration children had higher T1 GPA (*M* = 2.76, *SD* = .86) than children left behind (*M* = 2.65, *SD* = .88). Support was also found for hypothesis three; children of family migration had significantly higher T1 GPA than both left behind and parachute children, *t*(1598) = -2.339, *p* = .019. However, support was not found for hypothesis two; parachute children did not display higher T1 GPA scores than the other immigration experiences, *t*(1598) = -.799, *p* = .436.

There were no outliers present in T2 GPA. Homogeneity of variance was observed, *p* = .622. The omnibus model was non-significant for T2 GPA, *F*(2, 1603) = 2.211, *p* = .110. Contrast 1 showed a null finding, *t*(1603) = 1.380, *p* = .168, as did contrast 2, *t* (1603) = -1.251, *p* = .211. Support was found for contrasts 3; T2 GPA scores were significantly lower for left behind and parachute children compared to children of family migration, *t*(1603) = -2.067, *p* = .039.

The data on grade point averages were analyzed by immigration experience and sending region producing a total sample size of 1,568 children. Table 7 reports the mean and standard deviations for children's grade point averages by immigration experience and sending region across time. Information on group sample sizes are also included. Asian children of family migration have the highest GPA at both time points.

Table 7. Grade point averages by immigration experience and sending region across time

		T1 GPA (1992)	T2 GPA (1995)
Asia	*n*	M (*SD*)	M (*SD*)
Family migration	411	3.08 (.71)	3.00 (.85)
Children left behind	130	2.97 (.77)	2.92 (.89)
Parachute children	122	2.95 (.76)	2.81 (.97)
Caribbean			
Family migration	254	2.34 (.87)	2.23(.88)
Children left behind	67	2.58 (.86)	2.45 (.90)

|			
Parachute children	54	2.45 (*.91*)	2.29 (*.88*)
Central America			
Family migration	193	2.53 (*.92*)	2.44 (.90)
Children left behind	122	2.40 (*.89*)	2.34 (.86)
Parachute children	96	2.39 (*.82*)	2.27 (*.93*)
South America			
Family migration	60	2.83 (*.91*)	2.66 (.98)
Children left behind	29	2.35 (*1.08*)	2.33 (1.05)
Parachute children	30	2.65 (*.90*)	2.64 (*.92*)

A General Linear Model estimated the effect of immigration experience and sending region on T1 GPA. Several outliers were detected.[12] The sensitivity analysis revealed both models had similar findings, but the model with outlier removed was used. Levene's homogeneity of variance was violated, $p < .001$, so the dependent variable with outliers removed was log-transformed[13]. Homogeneity of variance was observed, $p = .057$. The model showed that time 1 GPA significantly differed by sending regions, $F(3, 1548) = 40.352$, $p < .001$. Asian children outperform children from other sending regions regardless of immigration experience. There was no main effect of immigration experience on T1 GPA, $F(2, 1548) = 1.962$, $p = .112$. A significant interaction between sending region and immigration experiences was found, $F(6, 1548) = 2.110$, $p = .049$. Figure 2 illustrates the nature of this interaction.

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[12] Nine data points were marked as outliers. Family migration/Asia group: .40, .40, .50, 1.10, and 1.10. Children left behind/Asia group: .38. Children left behind/South America group: .00. Parachute children/Central America: .17 and .27.

[13] Estimates from the log-transformed dependent variable model are reported. However, raw mean values are utilized in text and figures for ease of understanding.

The simple main effect of immigration experience showed that sending region had a statistically significant effect on T1 GPA for children of family migration, $F(3, 1548) = 49.624$, $p < .001$, partial $\eta^2 = .088$; left behind children, $F(3, 1548) = 10.317$, $p < .001$, partial $\eta^2 = .020$; and parachute migration $F(3, 1548) = 8.905$, $p < .001$, partial $\eta^2 = .017$. Asian children of family migration had significantly higher time 1 GPA than Caribbean and Central American children of family migration, both ps $< .001$. South American children of family migration had significantly higher time 1 GPA than Caribbean, $p < .001$, and Central American children of family migration, $p = .039$. Asian left-behind children had higher T1 GPA than Caribbean, $p = .012$, Central American, $p < .001$, and South American children of the same, $p = .026$. Asian parachute children had higher T1 GPA than Caribbean $p = .001$ and Central American parachute children $p < .001$.

Figure 2. Mean T1 GPA by immigration experience and sending region
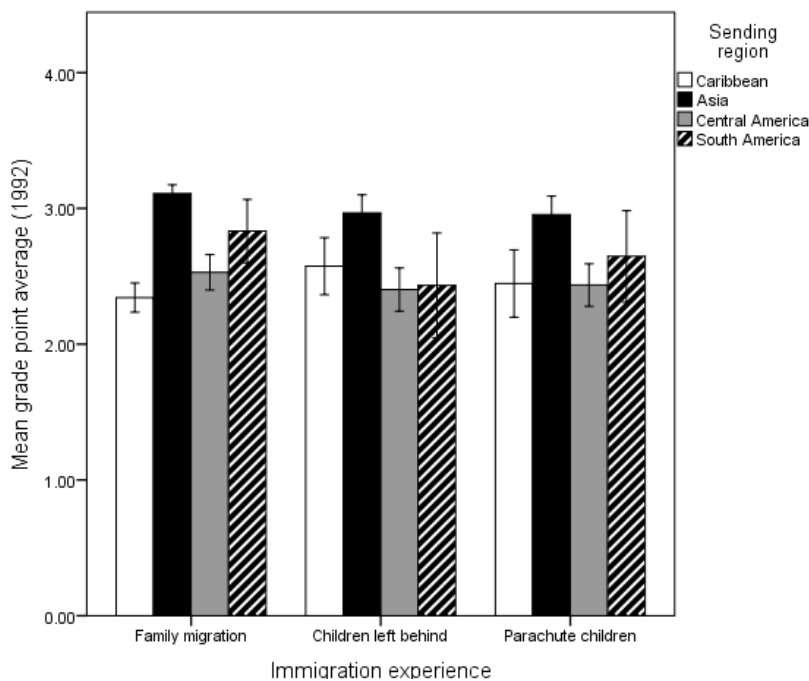
A General Linear Model estimated the effect of immigration experience and sending region on T2 GPA. Several outliers were detected by boxplot assessments and removed.[14] Levene's homogeneity of variance was observed, $p = .765$. Similar to T1 GPA results, there was no main effect of immigration experience on T2 GPA, $F(2, 1548) = 1.593$, $p = .204$. T2 GPA differed significantly by sending regions, $F(3, 1548) = 42.584$, $p < .001$, but no interaction between sending region and immigration experience was found, $F(6, 1548) = 1.438$, $p = .081$. Asian children of family migration had higher T2 GPA than Caribbean and Central American, ps $< .001$ and South American children of the same, $p = .013$. Central American children of family migration had higher T2 GPA than Caribbean children of family migration, $p = .047$. South American children of family migration also had higher T2 GPA than Caribbean children of the same, $p = .003$. Asian left-behind children had significantly higher T2 GPA scores than Caribbean, $p = .001$, Central American, $p < .001$, and South American left-behind children, $p = .001$. Asian children of parachute migration had significantly higher T2 GPA scores than Caribbean, $p = .001$, and Central American children of parachute migration, $p < .001$.

Education attainment

Table 8. Drop out behavior by immigration experience

Immigration experience	Dropped out by 1995 N (%)		
	No	Yes	Total
Family migration	879 (*97.23*)	25 (*2.77*)	904
Children left behind	302 (*92.92*)	23 (*7.08*)	325

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[14] Nine data points were marked as outliers. Family migration/Asia group: .00, .17, .50, and .40. Family migration/ Caribbean group: 4.72. Children left behind/Caribbean group: 4.38. Children left behind/South America group: 4.97. Parachute children/Asia: .00 and .31.

Parachute children	277 (*93.58*)	19 (*6.42*)	296
Total	1458 (*95.61*)	67 (*4.39*)	1525

A chi-square test for association was conducted between immigration experience and dropout responses. All expected cell frequencies were greater than five. More left behind and parachute children dropped out than was expected, while the opposite was true for children of family migration. There was a significant association between immigration experience and dropping out in 1995, $\chi^2(2) = 14.166$, $p = .001$, though *Cramer's V* was somewhat weak, .096.

A chi-square test for association was conducted between immigration experience and high school diploma. All expected cell frequencies were greater than five. There was not a statistically significant association between immigration experience and attaining a high school diploma, $\chi^2(2) = .543$, $p = .762$. On the other hand, there was a statistically significant association between immigration experience and attaining a GED, $\chi^2(2) = .6.255$, $p = .044$, with a moderately strong *Cramer's V*, .106. One expected cell had frequencies lower than five.

Behavioral outcomes.

A chi-square test for association was conducted between immigration experience and fighting behavior. All expected cell frequencies were greater than five. There was a significant association between immigration experience and fighting behavior, $\chi^2(4) = 10.924$, $p = .027$, though *Cramer's V* was somewhat weak, .059. Parachute children reported fighting more than twice in school at a frequency that was greater than expected. Table 9 shows that more children in parachute group reported fighting in school than any other group.

Table 9. Fighting behavior by immigration experience

Immigration experience	Fought in school N (*%*)			
	Never	Once or twice	More than twice	Total
Family migration	820 (*87.42*)	92 (*9.81*)	26 (*2.77*)	938

Children left behind	273 (*84.26*)	42 (*12.96*)	9 (*2.78*)	324
Parachute children	244 (*80.00*)	48 (*15.74*)	13 (*4.26*)	305
Total	1337 (*85.32*)	182 (*11.61*)	48 (*3.06*)	1567

A chi-square test for association was conducted between immigration experience and children's responses to the question, "others see me as a trouble maker." All expected cell frequencies were greater than five. There was a statistically significant association between immigration experience and perceived problem behavior, $\chi^2(6) = 27.795$, $p < .001$, though *Cramer's V* was somewhat weak, .089. In the case of family migration, more children than expected disagreed with the question compared to parachute children that reported agreeing to the statement at a frequency greater than expected.

Psychological outcomes.

The two-way ANOVA tested the effect of immigration experience and sending region on depressive symptoms in 1992 (T1 depressive symptoms). The dependent variable was log-transformed.[15] Homogeneity of variances was observed, $F(11, 1552)=1.182$, $p = .294$. There was no main effect of immigration experience, $F(2, 1552) = 2.233$, $p = .108$, or sending region, $F(3, 1552) = .947$, $p = .417$, on T1 depressive symptoms. However, there was a significant interaction between immigration experience and region on T1 depressive symptoms, $F(6, 1552) = 2.498$, $p = .021$, depicted in Figure 3. Within family migration, there were differences in depressive symptoms by sending region, $F(3, 1552) = 3.934$, $p = .008$. Pairwise comparisons with Bonferonni adjustments showed Asian children of family migration ($M =1.696$, $SE = .038$) had higher depressive symptoms than Caribbean children of the same ($M =1.532$, $SE = .038$), $p = .004$. Within the Caribbean region, there were statistically significantly different depressive

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[15] Model estimates are reported based on the log-transformed dependent model however, raw mean values are used in text and in figures.

symptoms across immigration experiences, $F(2, 1552) = 4.385$, $p = .013$. Pairwise comparisons

showed children left behind in the Caribbean ($M = 1.794$, $SE = .074$) had higher depressive

symptoms than Caribbean children of family migration ($M= 1.532$, $SE = .038$), $p = .010$.

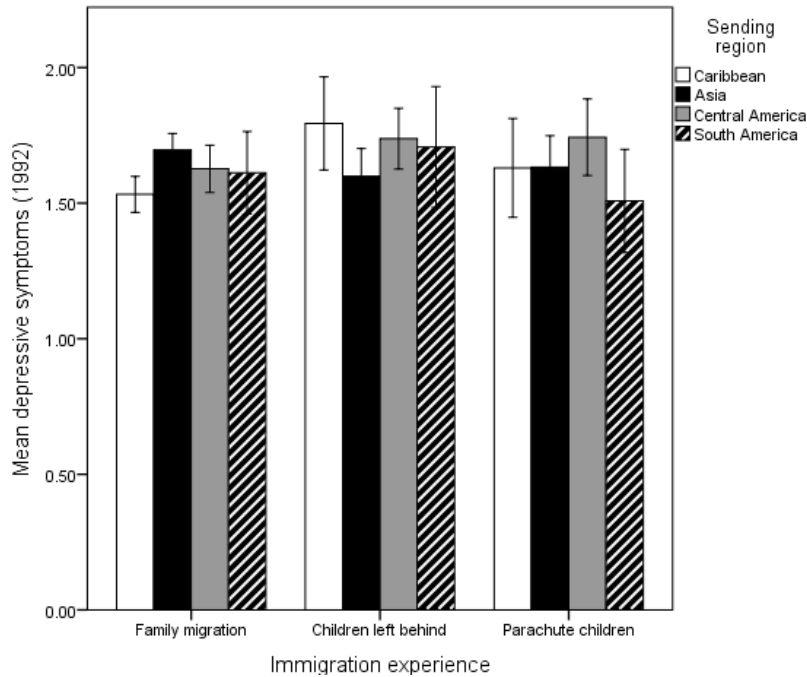Figure 3. Time 1 depressive symptoms by immigration experience and sending region

Figure 3 depicts the natures of the interaction. Asian left-behind children were the only

group for which depressive symptoms were not the highest. Instead, Asian children of family

migration have the highest depressive symptoms. For Caribbean children, children who migrated

with their mothers had lower depressive symptoms than those who were left behind. Parachute

children from Central American showed the greatest depressive symptoms within this group.

Figure 4. Time 1 depressive symptoms by immigration experience and sending region
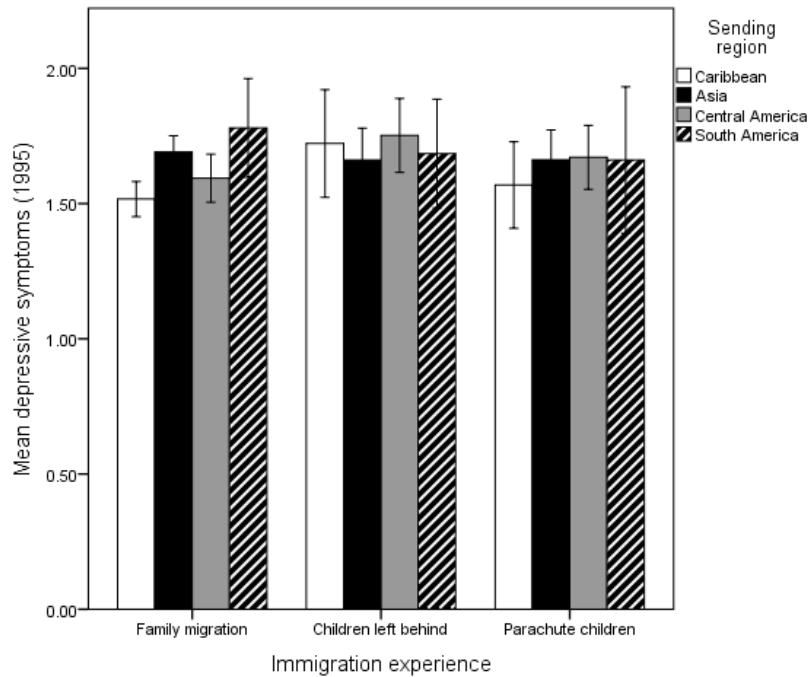
The dependent variable was also log-transformed and Levene's test of homogeneity was observed, $p = .117$. By 1995, the interaction disappeared, $F(2, 1512) = 1.274$, $p = .266$. Pairwise comparisons with Bonferroni adjustments found a similar pattern to those reported in 1992. That is, Asian children of family migration ($M = 1.691$ $SE = .031$), had higher depressive symptoms than Caribbean children of the same ($M = 1.517$, $SE = .039$), $p = .003$. At time 2, South American children of family migration ($M = 1.685$, $SE = .129$), also had higher depressive symptoms than Caribbean counterparts, $p = .021$.

DISCUSSION

This paper has added to the literature by redefining immigration to account for the unique influence of each immigration experience. In doing so, a better lens through which to examine immigrant children in the United States was offered. There is heterogeneity among children's immigration experiences and it is important that they are not treated with the same broad brush. The more researchers are able to identify different immigration experiences for children and their corresponding outcomes, the better able practitioners and policy-makers will be at helping them adjust to life in the United States.

This paper has also contributed to the current body of literature investigating the feminization of migration and its consequences for children (Günduz, 2013; Asis et al., 2004). Contrary to earlier patterns, women across regions are leaving their children behind (Dillon & Walsh 2013; Mena et al., 200). Additionally, there is evidence of children migrating before their mothers in what is known as parachute migration (Lee, 2006). This work provided estimates on the number of left-behind and parachute children that helps to determine the prevalence of each immigration experience. It is important to note that the original data collection occurred in the early nineties when children were already 14-years-old, which means these numbers are indicative of trends from the late 1970s. It was during this time that female international migration began to increase due to changes in the global labor demand (Asis et al., 2004). These numbers then, in essence, help construct a historical portrait of immigration-induced maternal separation.

In this sample, more than half the children experienced family migration, suggesting that historic patterns of women migrating with their children remain fairly common (Robles &

Watkins, 1993). What it does not suggest, however, is that the other immigration experiences occur infrequently. In fact, roughly four out of ten child migrants endured immigration-induced maternal separation. Information on the sending regions provides a more variegated image. Some regions, such as Asia and South America, exhibit more traditional immigration experiences. Children from these regions were found to commonly emigrate with their mothers. The Philippines is one notable exception where mothers are immigrating before their children. Moreover, the inclusion of Cubans in the Caribbean skewed the pattern of immigration towards family migration when, in fact, children left behind was the more common experience. Seventy-four percent of Haitians children in this sample were left-behind. Two thirds of Jamaican children in this sample endured maternal separation. As the largest sending country in Central America, Mexico was the only major sending-country to have a higher percentage of children left behind than children of family migration.

Even more striking was the length of separation and age at separation, especially when examined by immigration experience and sending region. In general, left-behind children were separated at younger ages and for longer periods than were parachute children. Compared to children left behind, parachute children are reunited with mothers seven months earlier and are separated at older ages. Overall, children from the Caribbean have the longest length of maternal separation, which was significantly longer than children from Asia and South America. Children from South America show the shortest separation lengths.

Separation lengths are driven by a combination of structural and personal factors (Dreby, 2010). The nature of American immigration policies is such that parents are forced to migrate without their children initially and then remain separated longer than anticipated. Dreby (2010) found in her sample of Mexican transnational families that parent's expectations for family

reunification were often thwarted by the realities of employment and economic instability. One father states: "The problem is that we immigrants end up here a long time," (Dreby, 2010, p. 37). The incongruence between parents' expected timetable and actual experience promotes a number of stressors for parents, children, and caregivers. Kin relations have been shown influential in facilitating female immigration (Gamburd, 2008; Parreñas, 2005), especially in matriarchal societies (Olwig, 1999). Studies on transnational families suggest that caregiver support for children varies. Maternal grandmothers often provide the least tumultuous form of support in that the compensation needed for their service is less (Dreby, 2010), while for others compensation is instrumental (Hondagneu-Sotelo & Avila, 1997). So it may be the case, as others have speculated, that having supportive kin relations may actually work to prolong the separation period, especially for left-behind children (Thomas-Hope, 1992).

When considering children's age at arrival to the United States, the Caribbean demonstrated another striking pattern across immigration experience. That is, left-behind children arrive to the U.S. almost four years later than their family migration and parachute compatriots. Age at arrival has been shown to impact children's educational attainment and assimilation (Beck, Corak & Tienda, 2012; Rumbaut, 2007). Children who emigrate to the U.S. during early childhood (0-6 years old), "generation 1.75," fair better on language acculturation and educational attainment than those who come to the U.S. during middle childhood (6-12 years old), or more commonly referred to as "generation 1.5" (Rumbaut, 2007). According to Beck and her colleagues, for every year after age eight that a child emigrates to the U.S., their chances of dropping out of high school increases (Beck et al., 2012). Caribbean left-behind children arrive to the United States, on average, at eight-years-old compared to children of family and parachute migration who have an earlier age of arrival, roughly four-and-a-half-years-old. What this means

is that Caribbean children who are left-behind are at higher risk of dropping out once they arrive in the United States than their counterparts. Even though children left behind from Central America showed the highest age at arrival, slightly over eight years old, there was no disparity between them and their peers. Nevertheless, left-behind children across regions are placed at increased risk, as their average age of arrival was eight-years-old. Indeed, findings from this study indicates that children left behind dropped out at a higher percentage than children arriving with mothers, evidenced by the 7% drop out observed in this group compared to only 3% in the other.

This paper also explored grade point averages by immigration experiences and sending region. Results show that children of family migration do better on academic outcomes compared to the other immigration types; in particular, Asian children of family migration showed the best academic outcomes. Overall, Asian children exhibited higher GPA scores than other groups, an unsurprising finding given their well-documented academic achievement and status as "model minority" (Qin & Han, 2011). Contrary to the literature on parachute children (Zhou, 1998), Asian parachute children did not show the highest GPA scores. Instead, Asian children of family migration children had the highest GPA scores. One reason for this finding lies in the fact that children were not assigned to parachute migration because their motives for migration correspond with traditional intentions to have a foothold in American school system. In fact, parachute migration in this case simply refers to children whose immigration preceded their mothers. Still, the chief concern of this type of immigration experience is that there is a lack of parental oversight. Children of parachute migration demonstrated greater externalizing behavior. Twenty percent of these children indicated fighting in school compared to only 12% of family migration children.

Psychological distress due to immigration-induced maternal separation has been documented (Suárez-Orozco, Todorova & Louie, 2002; Suárez-Orozco et al., 2010). This study corroborates and extends those findings; it was found that depressive symptoms were a function of immigration experience and sending region. Most strikingly, left-behind Caribbean children had higher depressive symptoms than their family migration peers. Given the previously discussed findings of early and prolonged separation, it is unsurprising that this group would show these symptoms. In fact, others have commented on this dynamic in the Caribbean and its negative outcomes (Crawford-Brown & Rattray, 2001; Pottinger, 2005). One scholar writes, "This migrating pattern is one of the most significant single factors affecting the Caribbean family (Crawford-Brown, 1999, p. 54), and speculates that the attachment system may play an essential role. Caribbean countries are matriarchal (Chamberlain, 2003) and show a strong tradition of female-headed households (Barrow, 1996), this combination may place these children at an increased risk of psychological distress when mothers migrate.

DATA LIMITATIONS AND FUTURE RESEARCH

Missing data contributed to uneven sample sizes of study groups. The original investigators, for reasons of cost, only administered the parent interview to 46% of children from the original sample (Center for Migration and Development, 2011). This decreased mothers' responses on their year of arrival by half. To compensate, children's report of mother's year of arrival were utilized. This likely produced some estimate errors. Not only were the questions probed differently, recall mothers were asked when they *permanently* settled in the U.S. and children were asked what year the mother came to the U.S., which taps fundamentally different migration patterns, but child reports are more unreliable compared to mothers. The strength of both variables of mothers' year of arrival is that they were continuous, which is suited for

calculations of mother-child length of stay. On the other hand, children's variables of arrival year were both continuous and categorical. At time one, children were asked to choose their length of separation based on the categories listed. At time two children were asked to report the year they arrived in the U.S. Categorizations of immigration experience used both measurement types; albeit not as precise as using two continuous variables, deliberate steps were taken to safeguard against potential mis-categorizations. However, because 20% of the sample was lost to attrition and some children did not answer the question at follow-up, calculations of children's length of stay were reduced. Estimates of children's age at separation and arrival are also undercounted for these reasons. To achieve better estimates of children's maternal separation in the context immigration, future research must directly ask mothers and children whether they endured separation during the immigration and if so to provide information on the year.

Outcome measures, such as depressive symptoms, were pre-selected. Future research may seek to examine other less explored markers of emotional distress or consider another angle such as, exploring emotion regulation. Do children who endure maternal separation use the same kind of emotion regulation techniques as those of family migration? Are both groups employing them at equal frequency? What are children's appraisals of the separation? Is this a better predictor of outcomes? How children process and cope with this type of maternal separation may help identity their needs, especially as it relates to classroom performance and later academic achievement.

Previous work by Blair (2000) discusses the necessity of emotional control for school readiness. He argues that negative emotionality can compete with cognitive processes when children allocate their resources to decreasing the arousal of emotions instead of allocating them to higher-order cognitive solutions. In a recent study, 11-year-old left-behind Sri Lankan children

performed worse on inhibition and working memory tasks compared to children with present

mothers (Hewage et al., 2011). Future work should continue in this vein.

Finally, Parrenas (2005) notes, "many migrant mothers are single mothers," (Parrenas,

2005, p.322). This work made a deliberate decision only to examine maternal separation, not

because fathers are unimportant (see Nobles, 2011 for the impact of father separation on

children), but because children may feel mother absence differently (Milkie et al., 1997).

Children from female-headed households may have a uniquely different experience and future

research should explore the interaction between immigration experience and family structure.

Other research questions should help investigate the etiology of left-behind children's

psychological distress; which is more traumatic for children, the length of separation or the age

at separation? Moreover, what factors buffer their distress, current caregiver support or

communication with absent mother? More research may help to inform immigration policies,

particularly to target children who are at elevated risk of psychological impairments due to their

immigration experience.

Researchers have found consistent linkages between attachment insecurities and negative

affect or psychopathology, more broadly (Mikulincer & Shaver, 2007). Individuals with

insecure-anxious attachment tend to show high levels of neuroticism, a marker of psychological

distress. Conversely, attachment security is associated with less psychological distress

(Mikulincer & Shaver, 2007). Similar to this study, many have used attachment theory as a

theoretical basis for examining left-behind children (Crawford-Brown, 1999), yet no one has

explicitly tested the attachment patterns of these children compared to children of family

migration or natives. Although children are left with relatives that may be apart of the child's

attachment hierarchy, the disruption to their primary figure may undermine any buffering effects,

as Bowlby suggests that primary attachment sets the stage for how children will attach to others. Given reunification is the goal of these segmented migration, even if surrogate mothers can offer warm and responsive care, children are once again going to be uprooted from an attachment figure. Research in this area may help inform the way reunification policies are structured.

Policy recommendations are difficult to suggest because immigration policies involve bi-lateral state agreements. What is clear, however, is that more consideration of the family is needed when discussing immigration reform. Policies that allow mothers to migrate with their children would be the ideal, but also satisfactory would be better visitation policies. Families should not have to endure years of separation in the age of global inter-connectedness. Advocacy work will also prove instrumental in bridging the gap between research and policy. More awareness on the topic will ensure that all the world's children are protected.

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