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Is Romanian mothers' employment status during a child's first year of life correlated with school-age children's behavior problems?

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IS ROMANIAN MOTHERS' EMPLOYMENT STATUS DURING A CHILD'S

FIRST YEAR OF LIFE CORRELATED WITH SCHOOL-AGE CHILDREN'S

BEHAVIOR PROBLEMS?

BY

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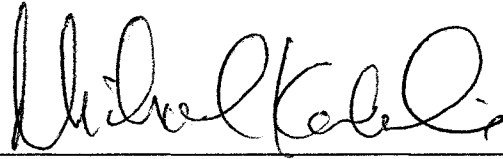
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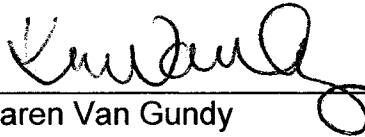
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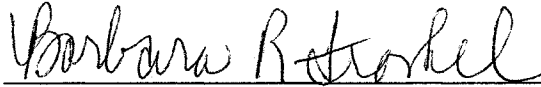
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DEDICATION

With love, to my husband, Iulian.

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I wish to thank to Professor Michael Kalinowski, my adviser for the last two years, whose knowledge and beliefs will always be an inspiration to me.

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ABSTRACT

BY

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University of New Hampshire, September, 2007

Although research studies are more likely now than in the past to include children and families of varied racial and ethnic backgrounds, no attempts have been made to examine the relationship between early maternal employment among Romanian mothers and their children's behavioral problems. Therefore, based on a sample drawn from a Romanian population, this thesis investigates whether maternal employment during the first year of the child's life is related to Romanian school-age children's behavioral problems, considering control variables like period of maternal employment, employment type, child care type, family income, child's age, maternal educational level, and family type. Findings illustrate that there is no statistically significant relationship between early maternal employment and children's later behavioral problems. It can be inferred that Romania's generous maternity leave policy has beneficial effects on children's behavioral problems, therefore, the effects found by studies conducted on American populations are not found in Romanian populations.

INTRODUCTION

> "The family is the most powerful, the most humane, and by far the most economical system known for building competence and character".
> (Bronfenbrenner, 1986, p. 4).

Research topic: The relationship between the mother's occupational status and her child's behavior problems.

Research question: Is Romanian mothers' employment status during a child's first year of life correlated with school-age children's behavior problems?

Based on data drawn from the Romanian population living in the Southwestern Romania, Southeastern Europe (Oltenia region, Gorj county, Tg-Jiu city), this thesis seeks to extend current knowledge about the relationship between early maternal employment and children's later behavioral problems. Additionally, the roles of child care type, period of maternal employment, type of maternal employment, family income, child's age, maternal educational level, and family type are examined. In this introduction section I review the background and significance of the study, maternity leave policy provisions in Romania and other Eastern/Southeastern European nations as well as maternity leave provisions in the United States and other developed countries.

Background and Significance

One of the most common concerns about family transformation is that women have been increasingly drawn into the workforce and away from their childrearing responsibilities (Vander Ven, 2003); consequently, structural changes in the workforce are posing increasing difficulty for parents to balance work and family duties (Bianchi, 2000). These trends represent a major change in how children are cared for in early childhood (Waldfogel, Han, & Brooks-Gunn, 2002) and a potential concern given prior research studies that have found negative effects of early maternal employment on children's outcomes (Han, Waldfogel, & Brooks-Gunn, 2001). During the 20th century, the labor force participation of women, especially married women with young children, increased dramatically (Bianchi, 2000). With a labor force participation rate of 59.3 percent, women represent 46 percent of the total United States labor force participation (U.S. Department of Labor, Women's Bureau, 2005). According to the United States Department of Labor, women are projected to comprise 47 percent of the total labor force participation in 2014. They will also account for 51 percent of the increase in total labor force growth from 2004 to 2014 (Women's Bureau, 2005).

It is estimated that three-quarters of all American mothers are in the labor force (Committee on Ways and Means, 1998, as cited in Han, Waldfogel, & Brooks-Gunn, 2001); over half of these mothers with children less than one year old are employed and more than 60 percent of mothers with children younger than three are working. Women with infants have had the fastest growth rate in labor force participation of any other group in the United States (Committee on

Ways and Means, 1998, as cited in Han et al., 2001): fifty-six percent of married mothers with a child under the age of one are employed, 61 percent with a child aged one year old, and 62 percent with a child aged two years old (Waldfogel et al., 2002). Unmarried mothers are more likely than married mothers to be employed (U.S. Department of Labor, Bureau of Labor Statistics, 2006): 59 percent of unmarried mothers with a child under the age of one are employed, 70 percent with a child aged one year old, and 75 percent with a child aged two years old (U.S. Department of Labor, Bureau of Labor Statistics, 2000, as cited in Waldfogel et al.). These percentages reflect a sharp increase in early maternal employment in the second part of the 20th century, with particularly dramatic changes for unmarried mothers and married-couple families with young children: from 1975 to 1998, the labor force participation rate of married women with children under the age of three increased from 30 percent to 62 percent for white women, from 50 percent to 75 percent for African American women, and from 24 percent to 42 percent for Hispanic women (U.S. Bureau of the Census, 1999, as cited in Waldfogel et al.)[1].

As the percentage of mothers who work has dramatically increased in the past few decades, the relationship between a mother's labor force participation and her child's development has been a topic of increasing concern for social researchers. This thesis is focused on the study of the relationship between Romanian mothers' employment and their children's behavioral problems. One of

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[1] No detailed information about the increase in Romanian mothers' labor force participation is available. Therefore, to illustrate the global trend of maternal employment growth rate, information regarding the labor for participation of American women is given.

the most controversial issues related to maternal employment in the United States concerns the timing of entry into the workforce - particularly during the first year of the child's life - and its effects on children's behavior. The assumption that scientific knowledge holds the key to solving social problems has long been an article of faith among social scientists. For several decades, social investigators have studied the relationship between early maternal employment and children's outcomes in the hopes of creating a knowledge base for informed social policy action (O'Connor, 2001). Therefore, whether maternal employment positively or negatively affects children's behavior is important to policy makers formulating legislation on maternity leave policies. A deficit of maternity leave policies designed to protect children, mothers, and their families forces women into early employment and away from their childrearing responsibilities (James-Burdumy, 2005). Additionally, employed mothers, deciding whether they will return to work soon after the birth of a child, also need to be aware of the impact early maternal employment may have on their children's later behavior outcomes (James-Burdumy, 2005).

It has been hypothesized in various research studies that mothers' employment status is linked to children's later behavior problems. Previous cross-sectional research studies (most of them using data from the National Longitudinal Survey of Youth) illustrate detrimental effects of maternal employment status on children's later behavior outcomes when employment occurs in the first year of the child's life (Roberts, 2002; Parcel & Menaghan, 1994; Vandell & Ramanan, 1992; Baydar & Brooks-Gunn, 1991; Belsky &

Eggebeen, 1991). Another recent research study, following a longitudinal design approach, illustrates that the negative effects of maternal employment in the first year of the child's life on later behavioral problems (such as peer conflicts, hyperactivity, anxiety/depression, dependence, compliance, anti-sociability, immaturity, headstrongness, and aggressivity) that many studies have examined at a single point in time persist and do not attenuate over time (Han et al., 2001).

Illustrating different findings depending on the timing of the mother's entry into the workforce, several studies emphasize the important role that maternal employment during the child's first year of life plays for a child's later behavior outcomes. While mothers' work force participation in the first year of the child's life has detrimental effects on children's later behavior problems, little or no significant effects are found for maternal employment begun in the following years of the child's life (Bates, Marvinney, Kelly, Dodge, Bennett, & Pettit, 1994; Baydar & Brooks-Gunn, 1991; Belsky & Eggebeen, 1991; Haskins, 1985). Several research studies reveal that the impact of early maternal employment on children's later behavior outcomes varies as a function of the children's age at the time the study is conducted. Mother's early employment status is associated with an increased likelihood for older (school-age) children to experience and exhibit behavioral problems; the evidence is less convincing for younger (pre-school) children (Lefebvre & Merrigan, 1998; Schachter, 1981; Hock, 1980). Moreover, previous research studies have illustrated that child, mother, and family characteristics are associated with children's outcomes (Brooks-Gun et al., 2002; Han et al., 2001). Therefore, the present study controls for a set of child,

mother, and family characteristics such as period of maternal employment, type of employment, child care type, family income, child's age, maternal educational level, and family type.

Although it is stated that research studies are more likely now than in the past to include children and families of varied socio-economic, racial, and ethnic backgrounds (O'Brien, 2005), no attempts have been made to examine the relationship between the early maternal employment among Romanian mothers and their children's later behavior outcomes. Therefore, the purpose of this thesis is to illustrate how maternal employment during the first year of the child's life is related to Romanian school-age (first, second, third, and fourth grades) children's behavior problems. I focus my research study on a Romanian population because its social and cultural heritage may influence mothers to react differently than American mothers do to the public family policies, to the emotional, psychological, and economic constraints motherhood can bring, affecting both the child and the family's well-being. On the one hand, the decision whether or not to enroll in the labor force market during the child's first year of life might reflect the mother' socio-economic status, cultural background, and mentality. The mentality that married women should not be employed, that women, especially mothers, belonged in the home to bear, rear, and care for their children dominated in the 1920s and 1930s all over the world. Employed mothers were considered "a menace to the race . . . accountable for the falling birthrate, declining parental responsibility and decadence in home and family life" (Hughes, as cited in Kamerman, Kahn, & Kingston, 1983, p. 33). Arguably, this mentality is

somewhat still found among Romanian people. On the other hand, a country's maternity leave policy's provisions might be correlated with the mother's labor force participation during their child's first year of life. This fact might lead the present study to reveal different results than those illustrated by studies focused on samples of American population.

Considering international standards, new American mothers return to work much earlier after giving birth than women in other countries. In contrast to figures for other industrialized nations, a third of new mothers in the United States return to work within three months of giving birth (Klerman & Leibowitz, 1999). In Europe (Sweden, Germany, and U.K.) only approximately five percent of new mothers return to work within three months from birth (Gustafsson, Wetzels, Vlasblom, & Dex, 1996). The fact that American mothers return to work so quickly is a potential concern if early returns to work result in negative outcomes for their children[2]. A considerable body of research studies conducted on American population samples illustrate that child development outcomes are generally better if mothers do not work, or do not work full-time, in the first year of the child's life, even when controlling for child care quality, child care type, the quality of the environment, and maternal sensitivity (Brooks-Gunn, Han, & Waldfogel, 2002). Although varieties in maternity leave usage may reflect cultural differences, people's preferences, social norms, or opportunities and constraints, family leave policies - which differ dramatically between the United States and

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[2] This thesis is focused on maternal employment after the birth of a child; therefore, no information is given regarding fathers' employment status and their return to work patterns.

Romania - are likely to play a role in women's maternity leave taking (Berger, Hill, & Waldfogel, 2005). Since the Romanian maternity leave policy is more generous than the United States maternity leave policy and mothers return to work later in the child's life (sometime after two years of age), it is expected that behavioral problems found in American children whose mothers were employed in their first year of life would not be found in Romanian children whose mothers did not work during that period of time[3].

Maternity Leave Policy Provisions in Romania

The purpose of maternity leave policies is to neutralize, or at least lessen, the negative impact of psychological, social, and economic constraints of forming families (Stropnik & Sambt, 2005). In the former European socialist countries, female employment rates were high and full-time employment represented the norm for women. Consequently, measures aimed at the reconciliation of professional and family responsibilities made an important part of family policy. Generous maternity leave policy has been an important constitutive part of the social policy (Stropnik, 2004).

The legal framework on maternity leave in Romania, one of the former socialist countries, has undergone many amendments during the past six years. Consequently, the Romanian maternity leave system has generous provisions in

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[3] Assumption based on the differences between United States' maternity leave policy provisions and Romania's maternity leave policy provisions. However, no comparison is made between American and Romanian children's behavioral problems. This thesis examines only the relationship between Romanian mothers' early maternal employment status and their children's later behavioral problems.

terms of income replacement, job protection, length, and flexibility. The recent amendments of the 19/2000 maternity leave law provide access to four types of leave (a) maternity leave for the period around the date of birth (126 calendar days, with at least 42 days of post-birth leave), (b) maternal risk leave (of 120 calendar days), (c) parental leave for raising a child (of up to two years, or three years for children with disabilities); and (d) leave for nursing sick children (of up to seven years of age or 18 years for children with disabilities. The length of leave, which may be 14 calendar days or more, is established by the doctor depending on the child's illness). In 2004, the government has introduced a new system in regard to the income-replacement for women taking maternity leave for raising children and looking after sick children. Therefore, the income replacement allowances are no longer dependent on the amount of the employee's previous contributions, but are fixed at 85 percent of the national gross average wage (European Foundation for the Improvement of Living and Working Conditions, 2004).

Given the differences in Romania and the United States' maternity leave policies' provisions and therefore, Romanian mothers' possibility of spending more time with their children – since maternal employment reduces the mothers' time spent with their children- it is expected that Romanian children have a lower likelihood of exhibiting behavioral problems than their American counterparts.

Maternity Leave Policy Provisions in Other Eastern/Southeastern European

Nations

According to an analysis conducted by Mercer Human Resource Consulting, maternity benefits vary widely around the world, even among countries in which the benefits are mandatory (Business and Legal Reports, 2003). In many countries, maternity leave policies represent a major measure aimed at reconciling work and family life for parents with young children (European Foundation for the Improvement of Living and Working Conditions, 2007). All European Union member nations have statutory maternity leave provisions guaranteed by the minimum requirements set out in the European Union directive on maternity leave. However, there are considerable variations across countries in the statutory leave provisions in terms of the duration of leave, financial support, and flexibility options offered to parents (European Foundation for the Improvement of Living and Working Conditions, 2007). There are also national differences in the proportion of employees using maternity leave and in their employment patterns once the period of leave runs out (Bruning and Plantenga, 1999; Moss and Deven, 1999; Fagan and Hebson, 2006; Plantenga and Remery, 2005, as cited in European Foundation for the Improvement of Living and Working Conditions, 2007).

In Eastern Europe, the level of maternity payment also varies widely. The Czech Republic and Russia provide the lowest level of monetary benefits (the equivalent of $1,762 and $2,000, respectively), while Hungary and Poland offer more than the European Union average ($8,077 and $7,692, respectively)

(Business and Legal Reports, 2003). In terms of the period of time off from work,

the most generous maternity leave allowance is offered by the Czech Republic

(28 weeks), followed by Poland (26 weeks), and Hungary (24 weeks). Russia has

the lowest maternity leave in terms of time off from work (20 weeks) (Business

and Legal Reports, 2003).

Table 1. Leave policies in Romania and other Eastern/Southeastern European

nations[4].

Country	Type of Leave	Total duration (months)	Payment rate
Romania	24 months of family leave	24	2 years at 85% of the national average wage; Flexibility: both parents are entitled to family leave
Czech Republic	Joint family leave until child is 4 years old	7	Very low monetary allowance (<2% of minimum living standard) No flexibility.
Latvia	Joint parental leave until child is 3 years old	36	Low flat-rate allowance (higher if claimed for 18 months instead of 36 months) Flexibility: leave can be taken in blocks until child is 8 years old and the allowance can be received while working part time. In addition: mothers can work reduced hours until the child is one year old

[4] Note. From "Legislation on maternity protection revised," by European Foundation for the Improvement of Living and Working Conditions, 2004; "Establishment survey on working time 2004–2005", by European Foundation for the Improvement of Living and Working Conditions, 2007.

Table 1 continued.

Hungary	Joint parental leave until child is 3 years old	36.0	Moderate earnings-related payment (average 70% earnings up to ceiling) until child is 2 years old; third year at lower flat-rate payment; Flexibility: the parent taking leave can work part time when the child is between 18 months and three years old
Poland	Joint parental leave until child is 4 years old	48.0	Flat-rate allowance for low income families (60% of minimum wage) for 24 months In addition: parents with a child under the age of 4 have the right to refuse to work more than 8 hours a day, or to work at night or away from home
Slovenia	Joint parental leave: 260 days per child following maternity leave; Fathers: have separate entitlement to 75 days paternity leave after maternity leave and to 15 days during maternity leave	12.0	High full earnings (100%) income replacement; Fathers' 75 days are at a low flat-rate payment; Flexibility: one parent has the right to work part time until child is three years old
Italy	5 months maternity leave 6 months parental leave	11.0	80% of prior earnings 30% of prior earnings
Cyprus	Each parent: 3 months full time before child is 6 years old	6.0	Unpaid Flexibility: maximum 4 weeks per year of leave
Greece	Each parent: 3.5 months in private sector before child is 3.5 years old; two years in public sector before child is 6 years old	24.0 in public sector; 3.5 in private sector	Unpaid; Flexibility: parents are entitled to modest reductions in daily working hours or the equivalent as a leave period for a fixed period following maternity leave without loss of income (paid childcare leave)
Italy	5 months maternity leave 6 months parental leave	11.0	80% of prior earnings 30% of prior earnings

Table 1 continued.

Portugal	Each parent: 6 months full time before child is 3 years old Fathers: 15 days of parental leave immediately following paternity or maternity leave	12.5	Unpaid except the 15 days for fathers (100% of earnings) Flexibility: leave available until child is 3 years old In addition: parents also have the right to work part-time or reduced hours until child is 12 years old
Spain	Joint parental leave until child is 3 years old	36.0	Parents with a child under the age of 6 years (or caring for a disabled person) has the right to reduce their working hours to 66% or 50% of full-time hours

Maternity Leave Policy Provisions in the United States

Until 1993, the United States was one of the few industrialized countries without national maternity leave legislation, the availability of maternity leave coverage depending, in general, on three variables: the employer or the company's policy for which the woman worked, the state of her residency, and the results of a collective negotiation agreement with diverse political and social unions. The Family and Medical Leave Act (FMLA), enacted in 1993, is the first federal law in the United States to provide the right to a job-protected maternity leave for employees who meet certain qualifying conditions: those who work in firms of at least 50 employees and have worked at least 1,250 hours in the prior year (Berger, Hill, & Waldfogel, 2005) are eligible for parental leave. Because of these qualifying conditions, the FMLA increased women's access to maternity leave coverage only in the medium-sized and large firms to which the policy applies. Therefore, less than one-half of the country's private-sector workers are eligible for maternity leave guaranteed by the FMLA (Waldfogel, 2001). Thus, for approximately half of American employed women coverage is still determined by

company policy rather than state or federal law (Berger et al.). Besides the fact that the maternity leave is limited in length to only 12 weeks, another major limitation of the FMLA as a family leave policy is that it does not include any income replacement or pay during the leave; consequently, some workers who may be eligible for maternity leave may not be economically able to take it. These drawbacks place FMLA in contrast to other developed nations' maternity leave policies, which provide, on average, more than 10 month-maternity leave with income replacement or payment, often followed by a period of parental or child-rearing leave (e.g., Denmark, Finland, Norway, Sweden, Austria, France, Germany, Portugal, etc) (European Foundation for the Improvement of Living and Working Conditions, 2007).

Maternity Leave Policy Provisions in Other Developed Nations (Including Western European Countries)

Parental leave policies in other developed countries differ from those in the United States in three major respects. First, the policies of other nations tend to provide a longer period of leave, an average of 10 month-leave in the OECD counties (Waldfogel, 2001). Second, other countries' policies typically provide some form of income replacement (for parents who were employed prior to the birth of the child) or income supplementation (for parents who were not employed prior to the birth). Third, the policies of the other countries tend to be universal, covering all new mothers (maternity leave), all new fathers (paternity leave), or all new parents (parental leave) (Waldfogel, 2001). These cross-country differences reflect the historical origins of these policies. In countries other than the United

States, maternity leave policies were introduced more than a century ago as a way of protecting the health of the mother and the health of the infant (Waldfogel, 2001). From a health perspective, it is not surprising that these policies provide for sufficient time off from work for a woman to recover from childbirth, to adjust to her new role, and to have the opportunity to breast-feeding; moreover, it is not surprising that they provide income support as well as time off, and that they are universal policies (Waldfogel, 2001).

Globally, maternity benefits appear to be lower outside Europe, with the exception of Brazil, where an individual earning the equivalent of $25,000 would receive $11,538 in benefits (Business and Legal Reports, 2003). In Australia, women do not receive any statutory maternity benefits, although they are given a government allowance of $448. Asian countries such as Singapore and Taiwan also have low levels of maternity pay - the equivalent of $3,846 in both countries (Business and Legal Reports, 2003).

As illustrated in table 2, when comparing the United States to other nations, the differences in parental leave policies are great. In contrast to the United States, which offer fewer than three months of leave following childbirth and no income replacement, Canada offers more than six months of leave (17 weeks maternity leave, plus 10 weeks of parental leave), and all but two weeks of the leave are paid at the rate of 55% of the previous earnings (Waldfogel, 2001). In the advanced European countries, the periods of leave (almost all paid) are even longer. The Nordic countries have very generous leave policies, ranging from 18 months in Denmark and Sweden, to three years in Norway and Finland.

The continental European countries are also generous in comparison to the United States, guaranteeing leaves that range from 11 months in Italy to 3.3 years in Germany (Waldfogel, 2001). Similar to the United States, the United Kingdom lacked universal coverage until recently, however, it now provides 18 weeks of maternity leave to all new mothers, paid as a percentage of previous earnings or as a flat rate, depending on the mother's prior employment status. The United Kingdom recently added an unpaid parental leave of up to 13 weeks, which can be taken by a mother or father any time during the first five years of a child's life (Waldfogel, 2001).

Table 2. Leave policies in the United States and other developed nations[5].

Country	Type of Leave	Total duration (months)	Payment rate
United States	12 weeks of family leave	2.8	Unpaid
Canada	17 weeks maternity leave 10 weeks parental leave	6.2	15 weeks at 55% of prior earnings
Denmark	28 weeks maternity leave 1 year parental leave	18.5	60% of prior earnings
Finland	18 weeks maternity leave 26 weeks parental leave Childrearing leave until child is 3	36.0	70% of prior earnings 70% of prior earnings
Norway	52 weeks parental leave 2 years childrearing leave	36.0	80% of prior earnings

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[5] Note. From "International policies toward parental leave and child care," by Waldfogel, 2001; "Establishment survey on working time 2004–2005," by European Foundation for the Improvement of Living and Working Conditions, 2007.

Table 2 continued.

Sweden	18 months parental leave	18.0	12 months at 80% of prior earnings, 3 months flat rate, 3 months unpaid
Austria	16 weeks maternity leave 2 years parental leave	27.7	100% of prior earnings
France	16 weeks maternity leave Parental leave until child is 3	36.0	100% of prior earnings Unpaid for one child; paid at flat rate (income-tested) for two or more
Germany	14 weeks maternity leave 3 years parental leave	39.2	100% of prior earnings Flat rate (income-tested) for 2 years, unpaid for the third year
Ireland	Each parent: three months full time before child is five years old	3.0	Unpaid Flexibility: can be taken part time or in blocks
United Kingdom	18 weeks maternity leave 13 weeks parental leave	7.2	90% for 6 weeks and flat rate for 12 weeks, if sufficient work history; otherwise, flat rate
Netherlands	Each parent: three months full time or six months part time before child is eight years old	6.0	Unpaid Flexibility: can be taken part time; In addition: employees have the right to ask their employer for part-time hours or to reverse to full-time hours
Belgium	Each parent: six months full time or 12 months part time before child is four years old (but does not cover all areas of the public sector)	6.0 full-time or 12.0 part-time	Flat-rate allowance Flexibility: can be taken part time; In addition: options for part-time and reduced hours with a flat rate payment for up to 5 years (average wage replacement rate of 26%)

Parental leave usage is very high in these countries (except the United

States), particularly on the part of women (Waldfogel, 2001). As expected, leave

policies significantly influence women's employment and leave-taking behavior.

For instance, when leave periods are extended or when benefits become more generous, women take longer leaves; by the same token, when leave benefits are decreased, women take shorter leaves.

United Kingdom and Ireland have the lowest levels of statutory maternity pay in Western Europe, according to a 2006 study by Mercer Human Resource Consulting[6] (Finfacts, 2006). In these two countries women receive lower pay entitlements than those in some Eastern European countries. In contrast, Denmark and Norway have the highest level of maternity leave benefits, more than twice as generous as those in the United Kingdom (Finfacts, 2006). While many aspects of employment laws are becoming more standardized across Europe, large discrepancies still persist in the area of maternity benefits. According to Mark Sullivan, Worldwide Partner at Mercer Human Resource Consulting Company, laws have been revised in the United Kingdom to offer women longer maternity leaves, yet pay levels are still very low compared to the rest of Europe (Finfacts, 2006).

In the introduction section I reviewed the background and significance of the study, maternity leave policy provisions in Romania and other Eastern/Southeastern European nations as well as maternity leave provisions in the United States and other developed countries. The next section details the theoretical approaches of this thesis in examining the relationship between early maternal employment and children's later behavioral problems.

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[6] The study covered 13 European countries; the comparisons are based on statutory pay built up over six months' maternity leave (Finfacts, 2006).

CHAPTER 1. THEORY

Research on maternal employment and children's behavior outcomes has been conducted from two main theoretical perspectives: the Attachment Theory and the New Home Economics Theory[7]. Attachment theory was developed from the joint work of John Bowlby and Mary Ainsworth (Ainsworth & Bowlby, 1991, as cited in Bretherton, 1992). Using concepts from ethology, evolutionary biology, developmental psychology, cognitive science, control system theory (Cassidy, 1999; Bowlby, 1969/1982), cybernetics, information processing, and psychoanalysis, John Bowlby formulated the basic principles of the theory which revolutionized the scientific thinking about "a child's tie to the mother and its disruption through separation, deprivation, and bereavement" (Bretherton, 1992, p. 759). Partly based on evolutionary theoretical framework, the attachment theory proposes that "attachment processes are rooted in genetic propensities of the young to seek and the parents to provide protection" (Peterson, 1995, p. 28).

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[7] Although studies examining the relationship between maternal employment and children's behavioral problems could be conducted from other theoretical perspectives, the Attachment and New Home Economics theories are the two main theories that guide such studies. The purpose of this thesis is not to test the two theories; these theoretical perspectives are used as guides for the present study.

Attachment Theory as Applied to the Study of the Association Between

Mothers' Employment Status During a Child's First Year of Life and

Children's Later Behavioral Problems.

The Attachment Theory states that children whose mothers are absent during critical periods of early child development are less likely to develop secure attachments with their mothers (Bowlby, 1969, Ainsworth, 1964, as cited in Han et al., 2001). Attachment theory has its initial roots in the belief that extended mother-child separations due to hospitalization, illness, and incarceration are associated with children's insecure attachment to the mother which is detrimental to children's development (Han et al., 2001). Furthermore, it has been theorized that maternal employment in the first year of the child's life constitutes a comparable absence (Belsky, 1988; Clarke-Stewart, 1989, as cited in Han et al.; Belsky & Eggebeen, 1991). Consequently, the central argument of this theory is revolving around the importance of the time that mothers spend with their children during infancy. It is stated that mothers who work during their child's first year of life are less likely to develop secure attachments with their children and, therefore, place them at a greater risk for behavior problems than mothers who do not work (Cook & Willms 1998, as cited in Roberts, 2002; Parcel & Menaghan, 1994; Belsky & Rovine, 1988). Attachment theorists believe that maternal employment status is a factor affecting the amount of time mothers have to spend with their children and, consequently, they associate lower levels of mothers' engagement (attachment) with their children with higher levels of

later negative behavior outcomes and less pro-social behaviors in children (Cook & Willms 1998, as cited in Roberts, 2002).

New Home Economics Theory as Applied to the Study of the Association Between Mothers' Employment Status During a Child's First Year of Life and Children's Later Behavioral Problems.

According to the New Home Economics Theory, a household is a productive entity in which the parents make decisions about expending economic and non-economic resources on their children and in which one of the many desirable products of the parent's investment is the child's health and later development. The core belief of this theory is that the family engages in a complex series of rational choice comparisons that will generate the most efficient strategy to provide economic and nurturing support for the family members. The new home economics perspective assumes that families will consider not only the economic outcomes, but also the non-economic consequences of maternal employment, such as the potential negative outcomes of young children raised in the absence of early maternal care. New home economics theorists view women's abilities to rear young children as an asset that is difficult and costly to replace and beneficial to children and their families. Moreover, the unavailability of early maternal care will be detrimental to young children's behavioral development. Therefore, keeping a mother at home rather than replacing her child care inputs (when the mother is employed) has a positive impact on children's later behavior and families' well-being (Hattery, 2001).

In regard to single mothers and their children's outcomes, it is theorized that family structure matters and that the single-parent family pattern is problematic for children's development (McLanahan & Sandefur, 1994; Cherlin, 1999). Families that experience marital disruption typically have less monetary resources and less parental time to devote to their children (Chase-Lansdale, & Michael, 1989; Desai et al., 1989). Single-parent families also have a relatively high probability for the mother to be employed (Desai et al., 1989). Taken together, both the lower level of monetary resources and the lower availability of the parent may be expected to have negative effects on children's outcomes (Desai et al.). The argument is that the father's absence is detrimental to the child's development because it decreases the family's income and therefore, compels greater labor market participation by mothers (Furstenberg, Morgan, & Allison 1987; Garfinkel, McLanahan, & Robins, 1994; Bianchi, 2002). The lack of a father's involvement may also disadvantage children in other ways, but the findings regarding those aspects are far less definitive (King, 1994; Amato & Gilbreth, 1999).

Control Variables/Hypotheses

To illustrate whether mother's participation in the work force work is a source of disadvantage for children's development as a direct determinant (Bianchi, 2000), several control variables are considered. First, the effects of maternal employment during the child's first year of life may reflect, at least in part, the effects of *non-maternal child care*, which is much less commonly used in the first year of life for children whose mothers are not participating in the labor

force (Walfogel et al., 2002). Therefore, because maternal employment can reduce maternal time spent with the child (James Burdumy, 2005) and considering that child care arrangements have been found to mediate the relationship between early maternal employment and children's later behavioral problems (Baydar & Brooks-Gunn, 1991; Howes, 1988), the present study controls for the *type of child care* in which the children were placed during their first year of life which may have direct effects on children's later behavioral outcomes (NICHD Early Child Care Research Network, 1998, as cited in Han et al., 2001; Waldfogel et al.).

Second, *child and family characteristics* can also mediate the effects of early maternal employment (Belsky & Eggebeen, 1991; Desai, Chase-Lansdale, & Michael, 1989). The child's age constitutes a critical mediating factor (Han et al, 2001), since mother's early employment status is associated with an increased likelihood for older (school-age) children to experience and exhibit behavioral problems; the evidence is less convincing for younger (pre-school) children (Lefebvre & Merrigan, 1998; Schachter, 1981; Hock, 1980). Moreover, the effects of early maternal employment may be mediated by family characteristics. Previous research studies have illustrated that *family income* is an important control variable. Mothers in low-income families may experience greater financial strain and hardship, which are negatively associated with maternal psychological functioning and parenting behavior (Conger, Eldel, Lorenz, Simons, & Whitbeck, 1992; Elder, Conger, Foster, & Ardelt, 1992; McLoyd, 1990). These effects may be more pronounced in low-income families

where mothers are working than in families where mothers are not participating in the labor force (Jackson, Brooks- Gunn, Huang, & Glassman, 2000). In addition, low-income families may be less capable to purchase qualitative and stable child care than more affluent families (NICHD Early Child Care Research Network, 1997). Therefore, greater negative effects of early maternal employment in low-income than in middle income or high-income families are expected to be found (Han et al., 2001).

Third, there seems to be a consensus among family demographers that *family structure* matters and that the single-parent family pattern is problematic for children's development (McLanahan & Sandefur, 1994; Cherlin, 1999). Families that experience marital disruption typically have less monetary resources and less parental time to devote to their children (Chase-Lansdale, & Michael, 1989; Desai et al., 1989). Single-parent families also have a relatively high probability for the mother to be employed (Desai et al., 1989). Taken together, both the lower level of monetary resources and the lower availability of the parent may be expected to have negative effects on children's outcomes (Desai et al.). The most compelling argument is that the father's absence is detrimental to the child's development because it decreases the family's income and therefore, compels greater labor market participation by mothers (Furstenberg, Morgan, & Allison 1987; Garfinkel, McLanahan, & Robins, 1994; Bianchi, 2002). The lack of a father's involvement may also disadvantage children in other ways, but the findings regarding those aspects are far less definitive (King, 1994; Amato & Gilbreth, 1999).

Fourth, a series of research studies have illustrated a positive relationship between *maternal education* and children's outcomes, as maternal education is associated with the quality of time (and activities) mothers spend with their children (Bianchi & Robinson 1997; Datcher-Loury 1988; Hill & Stafford 1974, 1980; Leibowitz 1974, 1977). It is assumed that a highly educated mother provides a more stimulating environment for her child than does an alternative daycare provider (Desai et al, 1989). Activities that interfere with maternal investment in children are problematic (Bianchi, 2000.). Therefore, the removal of mothers' time with their children by increased maternal employment, especially among the highly educated mothers (who now have high rates of labor market participation), has ultimately detrimental effects on children's outcomes (Bianchi, 2000).

Fifth, it may also matter how many hours the mother works (Harvey, 1999; Belsky, 1999; Parcel & Menaghan, 1994; Belsky & Eggebeen, 1991; Belsky & Rovine, 1988; Owen & Cox, 1988). The positive relationship between maternal employment and children's outcomes might be especially pronounced when mothers worked longer hours in the first year of the child's life (Brooks-Gunn, Han, & Waldfogel, 2002). For the purposes of the present study, the distinction between full-time employment and part-time employment is made as follows: mothers who worked 30 or more hours per week are considered to be full-time employed and mothers who worked less than 30 hours per week are considered part-time employees. The 30 hours per week threshold is selected because Belsky and Rovine's research study – the only study of early maternal

employment and child care to distinguish between extensive and full-time employment and care – has illustrated that the rate of insecure child-mother attachments is greater for families in which mothers worked 30 or more hours per week than in those in which they worked less than 30 hours per week (Belsky & Eggebeen, 1991; Belsky & Rovine, 1988).

Consequently, the impact of early maternal employment on children's later behavioral problems may be different depending on the type of child care in which the child is enrolled during the first year of life, maternal educational level, the family structure, the family income (Desai et al., 1989), employment type, and the age of the child. The present study also considers the period of maternal employment as a control variable, since the effects of maternal employment are larger when employment occurs earlier in the child's first year of life (Han et. al, 2001).

If the effects of early maternal employment on children's later behavior problems are different depending on the above mentioned variables, these interactions have implications for policy makers' understanding of those effects and also for their thinking about family policy remedies (O'Connor, 2001). If, for instance, the effects of early maternal employment on children's later behavioral problems are more severe for children from particular groups (single-parent family/intact family, low/middle/high income families, etc.), estimating these effects across all groups will lead to an underestimating of the impacts for those more vulnerable children. Additionally, understanding which children are more vulnerable can help family policy makers to target policy interventions at them

and to develop interventions that better address and ameliorate that vulnerability (O'Conner, 2001).

There are important variables that could mediate the relationship between early maternal employment and children's later behavioral problems; thus, the effects of early maternal employment on child's later outcomes are not expected to be uniform across all income levels, child care arrangements, family structures, child's characteristics, mothers' educational levels, type of employment, and employment period (Desai et al., 1989). Taken together, both previous research studies' findings and the two theories generate the hypothesis stated below in regard to the effects of early maternal employment in the first year of the child's life on the child's later behavioral problems. When testing for maternal employment status differences in children's behavioral problems when controlling for the period of maternal employment, type of employment, child care type, family income, child's age, maternal educational level, and family type, the tests are construed on the premise that human development is contextualized (Han et al., 2001; Bronfenbrenner & Morris, 1998). Therefore, the effects of early maternal employment on children's later behavioral problems are likely to vary as a function of context (Han et al., 2001; Bronfenbrenner & Morris, 1998).

Hypothesis: Children whose mothers are employed during their first year of life are likely to have later behavioral problems.

This hypothesis is tested by estimating the effects of maternal employment during the child's first year of life on the child's later behavioral problems (as assessed at the age of seven, eight, nine, ten, and 11).

As mentioned above, maternal employment status differences in children's behavioral problems when controlling for the period of maternal employment, type of employment, child care type, family income, child's age, maternal educational level, and family type are tested.

CHAPTER 2. METHODS. STUDY DESIGN

Sample

Process of recruitment and sample characteristics. The data were drawn from the Romanian population living in the Southwestern Romania, Southeastern Europe (Oltenia region, Gorj county, Tg-Jiu city)[8]. Mothers with school-age children (first, second, third, and fourth grades) were recruited through letters (written in Romanian language) sent home by the schools' principals[9]. After receiving the questionnaires from the researcher, the Gorj county Department of Education distributed them to three elementary schools (Elementary School no. 6, Elementary School no. 8, and Elementary School no. 11). The schools' principals sent the questionnaires to every mother whose child was enrolled in either first, second, third, or fourth grades. The sample size is comprised of 204 mothers. A response rate of 87 percent was obtained (of a total of 235 sent questionnaires, 31 mothers did not give their written consent for completing the questionnaires). The sample includes mothers of various ages at the child's birth, mothers of low, medium, and high incomes, mothers of various educational levels, mothers from single and two-parent families, and full-time and part-time employed mothers. Mothers' participation in the study was rewarded by putting

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[8] A Romania map illustrating the geographical location from where the data was collected is found in Appendix F.

[9] Example of letter written in Romanian language is found in Appendix C.

their names into a lottery for a prize including books for elementary school children. The sample's characteristics are shown in the following table.

Table 3. Characteristics of the sample.

Category								
Mothers' age distribution	Age	<20	21-25	26-30	31-35	36-40	41-45	>45
	Percentage	10.34	51.23	30.54	4.43	3.45	0	0
Mothers' educational level	Ed. Level	<High school		High school		College		Higher ed.
	Percentage	26.6		65.02		7.39		0.99
Mothers' marital status	Status	Single				Married		
	Percentage	14				86		
Mothers' family income	Income	Low		Medium		High		
	Percentage	46.32		47.89		5.79		
Maternal employment status	Status	Employed				Unemployed		
	Percentage	50				50		
Maternal employment type	Employment type	Part-time				Full-time		
	Percentage	69.32				30.68		

Procedure

The mail questionnaire type of survey research was used for data collection[10]. Every mother from the sample was mailed a questionnaire. Being aware of the disadvantages of this type of survey (low response rate, slow speed) (Neuman, 2006), the mail questionnaire was chosen for the following reasons: it can be conducted by the single researcher available and on a low budget and interviewer bias and social desirability are avoided (Neuman, 2006). Although a long questionnaire is more cost effective, in order to increase

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[10] A copy of the questionnaire is found in Appendix D.

participation and, therefore, to increase the response rate, the questionnaire was designed to have an overall short length (36 questions) (Neuman, 2006). Given the fact that children's behavior problems can be a sensitive issue for the mothers and, therefore, to increase the likelihood of getting honest responses (Neuman, 2006), the mail questionnaire is appropriate for the closed-ended questions the researcher needs to ask. By specifying the issues that are of interest for the researcher, the response alternatives offered in a closed-ended question can make clear for the respondent what the researcher intended to find by asking that specific question (Schwarz, 1999). There are no complex, open-ended questions, or questions demanding visual aides (Neuman, 2006). In trying to control context effects, a funnel sequence approach was used (the questionnaire is organized from general to specific questions) (Neuman, 2006).

After completing the questionnaires, the mothers sent them to the schools where their children were enrolled (principals' office). The schools' principals sent them to the Gorj county Department of Education which, upon receipt, mailed them to the researcher. Although I was aware of the fact that this could raise the costs for data collection, in order to raise completion rate, two reminder letters were sent to those who have failed to respond initially (Neuman, 2006) as follows: the first letter was sent one week after sending the questionnaires and the second one a week later. The participants were asked again for their cooperation and an offer to send them other questionnaires was made (Neuman, 2006). After the remainder letters were sent, 30 more completed questionnaires were obtained.

The cross-sectional nonexperimental research study provides information about children's behavior problems as measured at only one point in time. Although it cannot capture overtime changes that might appear in children's behavior, due to the restrictive budget available, the cross-sectional type of research seems an appropriate alternative (Neuman, 2006).

Ethical issues. To give the respondents information about who is conducting the study, the purpose of it, and the respondents' rights, an explanatory letter was attached at the beginning of the questionnaire (Appendix B). In order to keep the letter simple and understandable for the participants, not all the study's procedures were explained (Hurley & Underwood, 2002). The researcher was not only asking for permission from respondents, but was also explaining what they were being asked so that they would be able to make an informed decision regarding their participation (Neuman, 2006). The letter also explained that the participants' names would not be associated with their answers and would not be released in the process of revealing the study's results. The data is presented in an aggregate form which does not permit linking participants to specific responses (Neuman, 2006). In addition, for further protection, the participants' consent forms and their questionnaires are stored in a local file cabinet in the Family Studies department, University of New Hampshire and only my thesis committee members and I have access to it. Therefore, the respondents' confidentiality is protected (Neuman, 2006).

The researcher further explained that respondent's participation in the study is voluntary (Neuman, 2006) and that the mother may withdraw from the

study at any time. Participants were told that upon receipt of their completed consent forms and questionnaires, their will be entered into a lottery for a prize including books for elementary school children. The lottery was organized and the prizes were administered by the schools' principals. A brief summary of findings was sent to all the respondents at the time the study was finished (Neuman, 2006).

Measures

Early maternal employment. The mother's employment during the child's first year of life is conceptually defined as any type of work performed or services rendered in the child's first 12 months of life in exchange for monetary compensation. Early maternal employment is operationalized as the mother's employment status (employed/unemployed) during her child's first year of life. Using a closed-ended questionnaire item (Yes/No), the mothers provided their employment status during the child's first year of life. Mothers affirmatively answering this question are classified as having been employed. Given that previous empirical studies have illustrated that the effects of early maternal employment may be larger when mothers work longer hours, (Brooks-Gun et al., 2002), variables are created to control for whether mothers worked full-time (coded as 1 if the mother worked 30 or more hours) or part-time (coded as 0 if the mother worked less than 30 hours per week). Therefore, the full-time employment is operationally defined as 30 or more working hours per week and the part-time employment is defined as less than 30 working hours per week. This definition is consistent with NICHD Early Child Care Research Network

(2000, as cited in Brooks-Gun et al.) which used 30 working hours or more per week as the cutoff point to define full-time versus part-time employment. Moreover, dummy-coded variables will be constructed to capture whether mothers were working during the first three months (coded as 1), six months (coded as 2), nine months (coded as 3), or 12 months (coded as 4) of the children's life.

Behavioral problems[11]. Children exhibiting a recurrent pattern of negativistic, defiant, disobedient, and hostile conduct toward parents and other children are categorized as having behavior problems. Behavior problems are operationalized as the occurrence of the following conducts (attributes): interrupts or intrudes on others (e.g. butts into conversations/games), talks too much, fidgets with hands or feet or squirms in seat, blurts out answers before questions have been completed, has difficulty playing quietly, leaves seat in classroom or in other situations in which remaining seated is expected, has difficulty awaiting turn, is "on the go" or often acts as if "driven by a motor", runs about or climbs too much when he or she shouldn't, is easily distracted, does not seem to listen when spoken to directly, fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities, does not follow through on instructions and fails to finish chores or schoolwork (not due to oppositional behavior or failure to understand directions), has difficulty continuously paying attention in tasks or play activities, avoids, dislikes, or is

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[11] The measure was constructed using the NICHD Study of Early Child Care and Youth Development, 2002 – Child Behavior Rating Scale).

reluctant to engage in tasks that require continued mental effort (such as school or homework), has difficulty organizing tasks and activities, is forgetful in daily activities, argues with adults, is spiteful or mean, blames others for his/her mistakes or misbehavior, refuses to comply with adults' requests or rules, is angry and resentful, is touchy or easily annoyed by others, loses temper, deliberately annoys people (National Institute of Child Health and Human Development [NICHD] - Study of Early Child Care and Youth Development, 2002).

Child care. The mothers were asked at the time they completed the questionnaires to provide the child care arrangements in which their children were enrolled during their first year of life. The primary child care arrangements during the first year of the child's life are categorized as follows: (1) parental care (care by mother or father), (2) relative care (care by siblings, grandparents, or other relatives), (3) nonrelative care (care by someone other than a relative), or (4) center care (day-care center) (Han et al., 2001).

Sociodemographic variables: Child, mother, and family characteristics. Previous research studies have illustrated that child and family characteristics are associated with children's outcomes (Brooks-Gun et al., 2002; Han et al., 2001). Therefore, the present study controls for a set of child, mother, and family characteristics such as: child's age, maternal educational level at the child's birth – represented by a four-level variable (less than high school- coded as 1, high school diploma – coded as 2, college graduate – coded as 3, and higher education graduate – coded as 4), child care type – represented by a four-level

variable (parental care – coded as 1, relative care – coded as 2, nonrelative care – coded as 3, and center care – coded as 4), family structure (single parent family – coded as 0 and two parent family – coded as 1), period of maternal employment - represented by a four-level variable (first three months – coded as 1, first 6 months – coded as 2, first 9 months – coded as 3, and first 12 months – coded as 4), employment type – represented by a two-level variable (less than 30 hours per week – coded as 0, and 30 hours or more per week – coded as 1), and family income. To compare the effects of first-year maternal employment on children's later behavioral problems for children from families with low, medium, and high income levels, the various levels of income were defined as follows: low family income - defined as an aggregate minimum gross family income[12] (mother's salary plus father's salary) of less than RON 780 per month/$303.73 per month - as calculated at a currency converter of 1 USD = 2.5681 RON, effective as February 19, 2007 - (Personal communication, March 7, 2007; Romania Department of Labor, Social Solidarity, and Family, 2007b; Curs Valutar, 2007; Wall Street Business in timp real, 2006), medium gross family income - defined as an aggregate medium gross family income[13] of RON 2,540 per month/$989 per month - as calculated at a currency converter of 1 USD =

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[12] Romania's national minimum gross guaranteed wage is RON 390 per month (Romania Department of Labor, Social Solidarity, and Family, 2007b; Personal communication, March 7, 2007). The aggregate minimum gross family income was calculated by summing up two minimum gross incomes of RON 390/month (assuming families of two working parents).

[13] Romania's national medium gross income per economy is RON 1,270/month (National Institute of Statistics, 2007a). The aggregate medium gross family income was calculated by summing up two medium gross incomes of RON 1,270/month (assuming families of two working parents).

2.5681 RON, effective as February 19, 2007 - (Curs valutar, 2007; National Institute of Statistics, 2007a), and high family income – defined as an aggregate gross family income greater than RON 2,540 per month. Therefore, the mothers were asked to place themselves in one of the following three categories of family income: RON 780 per month or less (low income), RON 781 – 2,540 per month (medium income), RON 2,541 or more (high income). The low family income is coded as 1, the medium family income is coded as 2, and the high family income is coded as 3.

Scale, scores, and indexes. Each mother rated the likelihood of occurrence of each behavior problem using a four-point scale: not at all, just a little, pretty much, and very much, the scale ranging from zero to three points. To obtain an overall numerical score of behavior problems for each child, the mother's responses for all 25 items, for each child, were added, creating this way a single index score for the new created *behavioral problems* variable. Therefore, the Disruptive Behavior Disorder total index score is computed as the sum of items 1 to 25. The possible scores range from 0 to 75, with higher scores indicating more hyperactive-impulsive, inattentive, attention deficit-hyperactivity, and oppositional defiant behaviors. The five aspects of behavior are illustrated as follows: the Hyperactive Impulsive Behavior score is computed as the sum of items 1, 3, 5, 10, 11, 14, 19, 20, and 21. The possible scores range from 0 to 27, with higher scores indicating more hyperactive impulsive behaviors. The Inattentive Behavior score is computed as the sum of items 4, 9, 12, 16, 18, 22, 24, and 25. The possible scores range from 0 to 24. The Attention Deficit,

Hyperactivity Disorder (ADHD) is computed as the sum of items 1, 3, 5, 10, 11, 14, 19, 20, 21, 4, 9, 12, 16, 18, 22, 24, and 25 (Hyperactive Impulsive Behavior items plus Inattentive Behavior items). The possible scores range from 0 to 51, with higher scores indicating attention deficit-hyperactive behaviors. The Oppositional Defiant Disorder is computed as the sum of items 2, 6, 7, 8, 13, 15, 17, and 23. The possible score range from 0 to 24, with higher scores indicating more oppositional defiant behaviors. The Disruptive Behavior Disorder total score is computed as the sum of items 1 to 25. The possible scores range from 0 to 75, with higher scores indicating more hyperactive-impulsive, inattentive, attention deficit-hyperactivity, and oppositional defiant behaviors (NICHD Study of Early Child Care and Youth Development, 2006). Consequently, a highest possible index score of 75 – indicating that the child has behavior problems – and a lowest possible index score of 0 – indicating that the child does not have behavior problems - is obtained.

Measure Design

The unit of analysis is the individual child (based on mothers' reports). To measure children's behavior problems the Child Behavior Rating Scale (NICHD Study of Early Child Care and Youth Development, 2002) was used. The Child Behavior Rating scale obtains parental report of problem behavior of children 7-12 year old. The measure has been standardized on large samples of children in the United States (e.g., phase III of the NICHD Study of Early Child Care and Youth Development was conducted between 2000-2005 and followed over 1,200 children from second grade through their seventh year of school) (NICHD Study

of Early Child Care and Youth Development, 2007). Five aspects of behavior (Hyperactive Impulsive Behavior, Inattentive Behavior, Attention Deficit, Hyperactivity Disorder (ADHD), Oppositional Defiant Disorder, and Disruptive Behavior Disorder) are assessed with 25 items that describe children's reactions to different situations. The items are rated on a four-point scale ranging from 0 = not at all to 3 = very much to reflect the child's behavior during the past 12 months.

The Cronbach's alpha for the Child Behavior Rating Scale of .93 indicates that the instrument is internally consistent based on teacher ratings at grades 3, 4, 5, and 6 (Campbell, personal communication, February 23, 2007; NICHD Study of Early Child Care and Youth Development, 2006)[14]. The quantifiable concurrent validity of the instrument was assessed by associating the Child Behavior Rating Scale with the Disruptive Behavior Disorders Rating Scale (Pelham, Gnagny, Greenslade, & Milich, 1992, as cited in NICHD Study of Early Child Care and Youth Development, 2006). This association indicates that the measure is highly correlated with the Disruptive Behavior Disorders Rating Scale measure (NICHD Study of Early Child Care and Youth Development, 2006), therefore a highly accurate and valid instrument.

In order to avoid interviewer bias and to increase the likelihood of getting honest responses to questions on sensitive topics (Neuman, 2006) like children's behavior problems, the mail questionnaire format was chosen. Moreover,

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[14] The Cronbach's alpha for this study's data is .92, therefore, according to the data the Child Behavior Rating Scale is internally consistent.

behavior problems may be more accurately measured using closed-ended questions – preponderant in mail questionnaire (Neuman, 2006). However, there is a possibility of losing some other behavior problems that I did not think of when the respondent is reduced to choose an answer from the fixed categories created (Neuman, 2006; Schwarz, 1999).

To make sure the respondents understand the questions asked and their understanding is consistent with the intended meaning of the questions, the items do not contain ambiguous terms which might confuse the respondents (Schwarz, 1999). The questions were translated from English to Romanian language by the researcher and the accuracy of the translation was verified by a Romanian English professor. Additionally, the questions are simple, easy to answer, and grouped by topic (Neuman, 2006; Schwarz, 1999) into two sections: Demographics and Child Behavior Rating Scale. In order to avoid threatening words (Neuman, 2006) which might determine the respondents to distort the answers, the word *problems* was not included. Additionally, to further increase honest answers, the enhanced phasing technique was used (Neuman, 2006). For further clarification, every section begins with a short introductory statement (e.g., *On the next two pages you will see a set of statements that describe children's reactions to a number of situations. I would like you to tell me what your child's reaction is likely to be in those situations. Of course, there are no "correct" ways of reacting; children differ widely in their reactions, and it is these differences I am trying to learn about. Please read each statement and decide whether that situation applies to your child's behavior in the last 12 months.*

Please answer the statements by circling the number that corresponds to the category-behavior and to the likelihood that your child exhibits that behavior (Not al all = 0, Just a little = 1, Pretty much = 2, Very much = 3). Since there will be no interviewer to interact with the participants, the questionnaire's layout is attractive in appearance to persuade the respondent (Neuman, 2006). To control for the possibility that the mothers will not have the time and patience to answer to a long-length survey, the questionnaire was designed to have an overall short length (36 questions). The instrument has 25 items.

CHAPTER 3. DATA ANALYSIS. RESULTS AND DISCUSSION

In this chapter, the findings from the statistical analyses used to test the hypotheses are presented. Descriptive, bivariate, and multivariate statistics on the variables used in the analyses of the relationship between early maternal employment and children's later behavioral problems are given. Finally, a brief discussion of the findings is reported.

Descriptive Statistics

Univariate statistics are used to describe each variable separately (Neuman, 2006). The data on maternal employment status (the number of employed and unemployed mothers) is summarized with the raw count frequency distribution (Neuman, 2006). Because maternal employment is a discrete, nominal variable, the same data is presented in a bar graph (Neuman, 2006). Given the fact that behavior problems is a continuous variable, measures of central tendency are used to summarize the information about the distribution of behavioral problems data. Therefore, being the most widely used measure of central tendency, the mean will be chosen to calculate the center of the distribution (Neuman, 2006). In order to see how dispersed (average distance) are the scores in the distribution toward the mean, the standard deviation is given (Neuman, 2006). The median and mode are also used to describe the dependent variable. The data on behavioral problems variable is graphed in a frequency

histogram. The histogram allows the researcher to eyeball whether the data tend to have a normal distribution or have a skewed distribution (Neuman, 2006).

Description of the sociodemographic makeup of the sample.

The present thesis illustrates the association between early maternal employment – the focal independent variable - and children's later behavioral problems – the dependent variable, while considering other control variables such as mother's educational level, mother's marital status, family income, child's age, number of hours the mother worked during the child's first year of life, period of employment, and child care type. That is, it is hypothesized that children whose mothers are employed during their first year of life are likely to have later behavioral problems. It is assumed that there is a positive relationship between the independent variable and the dependent variable. The study is conducted on a sample of two hundred and four Gorj county elementary school children, ages 7-11. The majority of subjects (48 percent) are 9 and 11 year old children, as shown in Table 4 and Figure 1. Children ages 8 and 10 comprise 44 percent of total sample. The average child's age is 9.29.

Table 4. Children's age distribution.

```
Child's age |      Freq.     Percent        Cum.
------------+-----------------------------------------
          7 |         16        7.84        7.84
          8 |         45       22.06       29.90
          9 |         52       25.49       55.39
         10 |         45       22.06       77.45
         11 |         46       22.55      100.00
------------+-----------------------------------------
      Total |        204      100.00
```

Figure 1: Children's age distribution

Figure 1: Children's age distribution
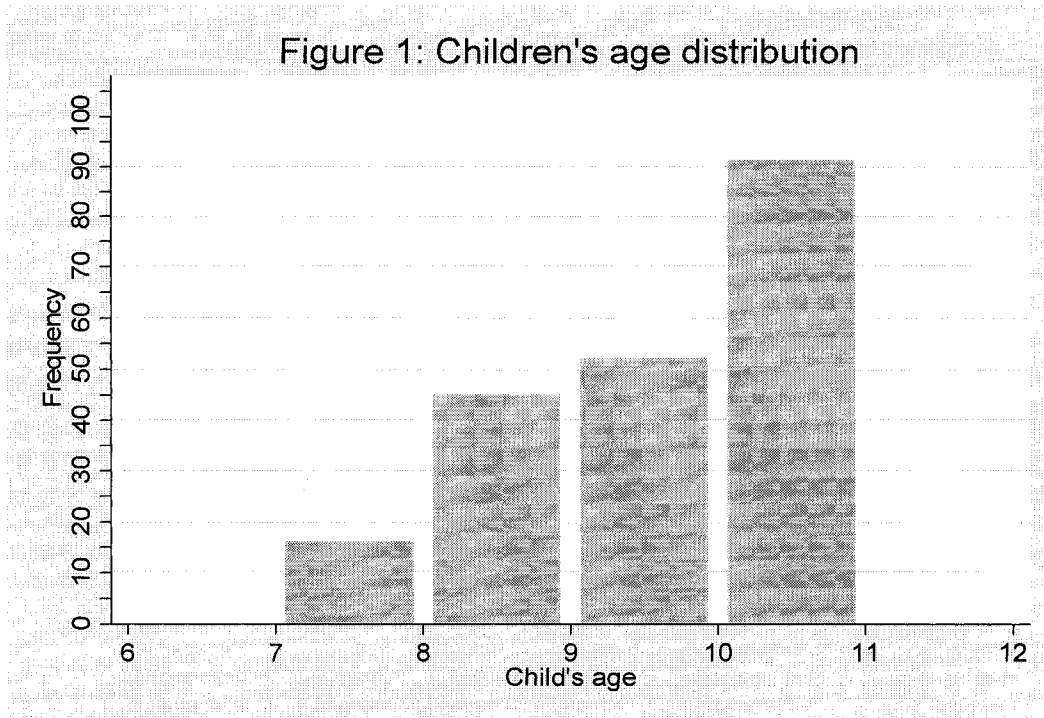
As shown in Table 5, 49 percent (99/202) of total children are female and 51 percent are male.

Table 5. Proportion of female and male children in total sample.

```
Child's  |
  gender |      Freq.      Percent        Cum.
---------+-------------------------------------
  female |         99        49.01        49.01
    male |        103        50.99       100.00
---------+-------------------------------------
   Total |        202       100.00
```

Table 6 illustrates that 89.34% (176/197) of total children were taken care of during their first year of life by their parents, 8.63% were taken care of by relatives, and 2.03% were enrolled in day care centers. None of the children were placed in nonrelative care (care by someone other than a relative).

Table 6. Distribution of child care arrangements.

```
  Child care   |
  arrangement  |    Freq.      Percent        Cum.
---------------+--------------------------------------
 parental care |     176        89.34        89.34
 relative care |      17         8.63        97.97
   center care |       4         2.03       100.00
---------------+--------------------------------------
         Total |     197       100.00
```

Table 7 illustrates that 51.23% of the respondent mothers were 21-25 years old when giving birth to their child, 30.54% were 26-30 years old, and 10.34% were less than 20 years old. No mothers were older than 40 years old when they gave birth to their child.

Table 7. Mothers' age distribution at the child's birth.

```
Mother's age  |    Freq.      Percent        Cum.
--------------+---------------------------------------
less than 20  |      21        10.34        10.34
       21-25  |     104        51.23        61.58
       26-30  |      62        30.54        92.12
       31-35  |       9         4.43        96.55
       36-40  |       7         3.45       100.00
--------------+---------------------------------------
       Total  |     203       100.00
```

Table 8 shows that 65.02% of mothers had completed high school education by the time they gave birth to their child and 26.6% had less than high school studies by that time.

Table 8. Mothers' educational level.

```
      Mother's educational |
                     level |    Freq.      Percent        Cum.
---------------------------+--------------------------------------
     less than high school |      54        26.60        26.60
       high school diploma |     132        65.02        91.63
          college graduate |      15         7.39        99.01
higher education graduate  |       2         0.99       100.00
---------------------------+--------------------------------------
                     Total |     203       100.00
```

Table 9 illustrates that 86% mothers are married and 14% are single mothers.

Table 9. Mothers' marital status distribution.

```
Mother's marital |
          status |    Freq.      Percent        Cum.
-----------------+---------------------------------------
single parent family |      28       14.00        14.00
   two-parent family |     172       86.00       100.00
-----------------+---------------------------------------
           Total |     200      100.00
```

Table 10 shows that 47.89% of the respondents are living in low income families, 46.32% are living in medium income families, and 5.79% are high income families. There are 14 respondents who did not report their family income.

Table 10. Family income distribution.

```
Actual monthly |
 family income |    Freq.      Percent        Cum.
---------------+---------------------------------------
 low-income family |      88       46.32        46.32
medium income family |      91       47.89        94.21
 high income family |      11        5.79       100.00
---------------+---------------------------------------
          Total |     190      100.00
```

Table 11 and Figure 2 illustrate that 50% of total respondents were employed during the child's first year of life.

Table 11. Mothers' employment status distribution.

```
   Mother's |
 employment |
     status |
 during the |
    child's |
 first year |
    of life |      Freq.       Percent        Cum.
------------+------------------------------------------
   employed |        102         50.00         50.00
 unemployed |        102         50.00        100.00
------------+------------------------------------------
      Total |        204        100.00
```


Figure 2: Distribution of employment categories

50%   50%

employed   unemployed
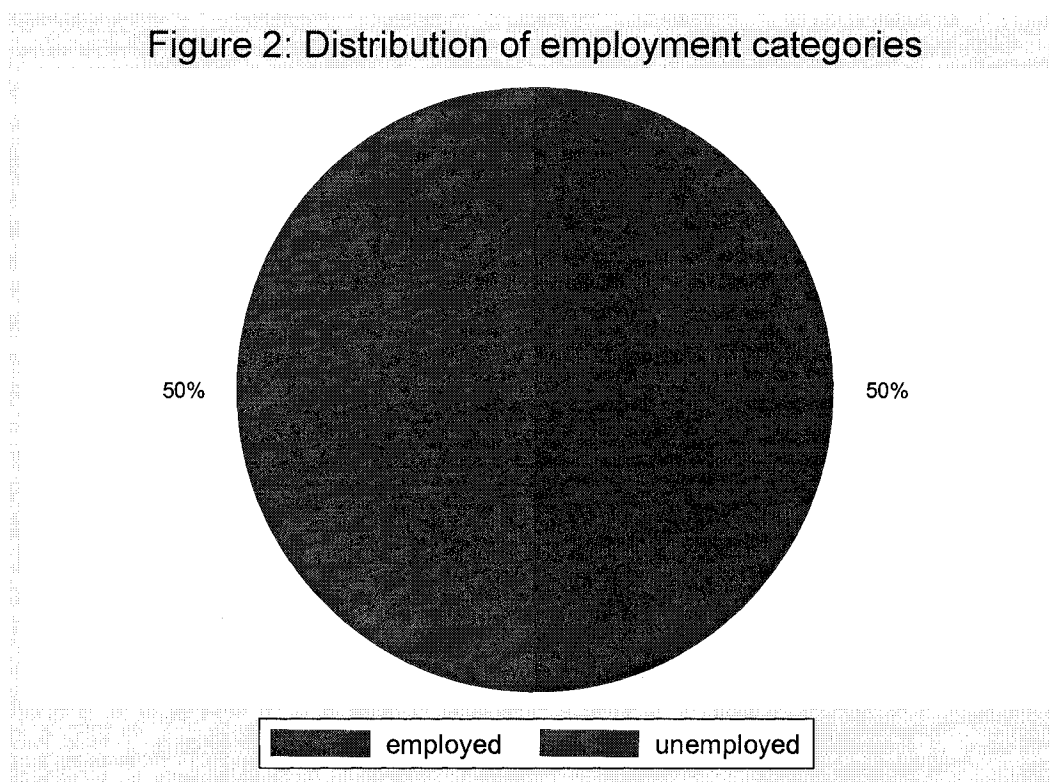
Table 12 and Figure 3 illustrate that of those mothers who worked during

the first year of the child's life (102), 69.32% worked less than 30 hours per week

and 30.68% worked 30 hours or more per week. There are 14 respondents who

did not report the number of hours the mothers worked per week during the child's first year of life.

Table 12. Distribution of the number of hours the mothers worked per week during the child's first year of life.

```
# of hours |
worked per |
week during |
the child's |
first year |
    of life |     Freq.       Percent        Cum.
------------+-----------------------------------
  part-time |        61         69.32        69.32
  full-time |        27         30.68       100.00
------------+-----------------------------------
      Total |        88        100.00
```


Figure 3: Distribution of # of hours worked
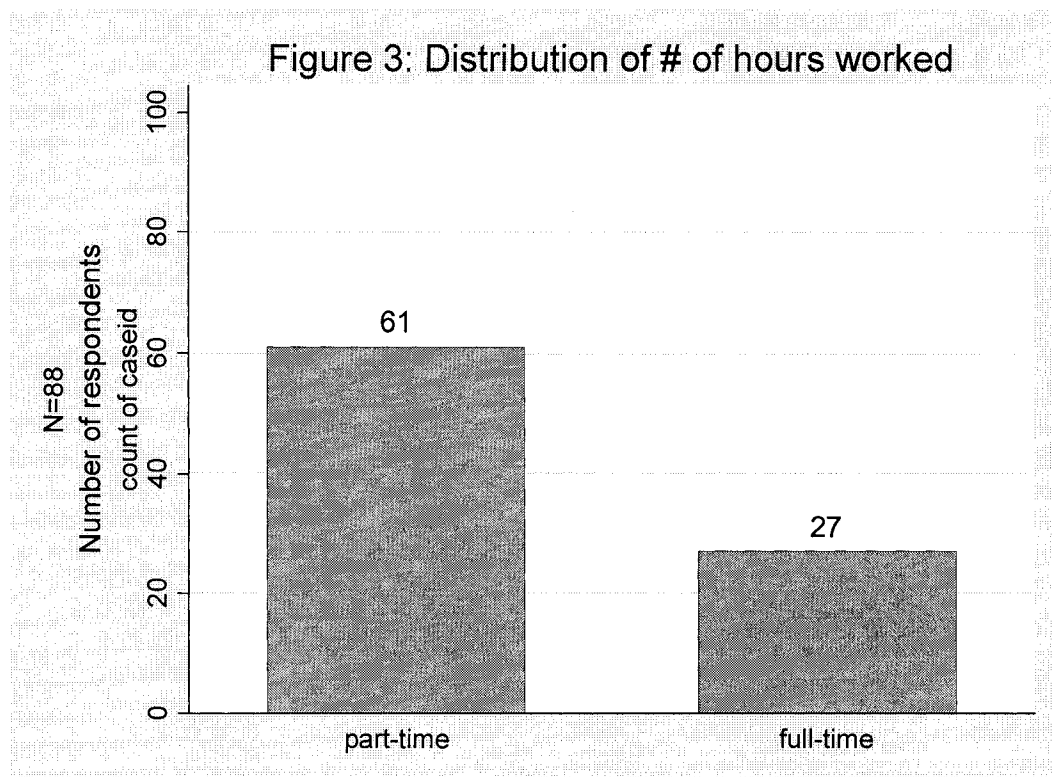
Table 13 and Figure 4 indicate that of those mothers who worked during the first year of the child's life 55.38% entered the labor market during the first 12

months of the child's life, 23.08% were employed during the first three months, 13.85% were employed during the first nine months, and 7.69% during the first six months of the child's life. Consequently, it can be expected that children's behavioral problems to be alleviated by mothers' employment during their first 12 months of life (inference based on the assumption that the effects of maternal employment are larger when employment occurs earlier in the child's first year of life (Han et al., 2001). There are 37 respondents who did not report the period of the child's first year of life they entered the labor market. Therefore, given the missing data there is the possibility that the researcher would make the logical Type II error.

Table 13. Distribution of the period of the child's first year of life the mothers entered the labor market.

Period of child's first year of life the mother entered labor force	Freq.	Percent	Cum.
3months	15	23.08	23.08
6months	5	7.69	30.77
9months	9	13.85	44.62
12months	36	55.38	100.00
Total	65	100.00	

Figure 4: Distribution of employment period
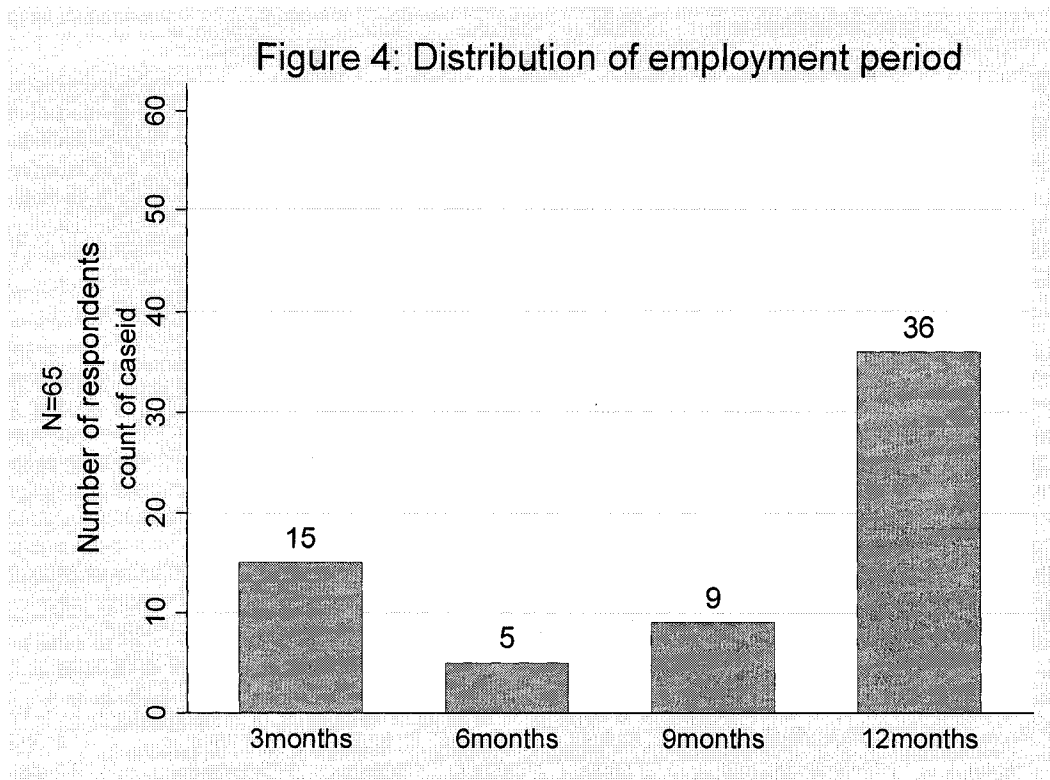
The description of the sociodemographic makeup of the sample is summarized in the following table.

Table 14. The sociodemographic makeup of the sample.

Category											
Child's age distribution	Age	7		8		9		10		11	
	Frequency	16		45		52		45		46	
	Percent	7.8		22		25.54		22		22.5	
	% by employmen t status	E[15]	U	E	U	E	U	E	U	E	U
		4.9	10.8	17.6	26.5	24.5	26.5	23.5	20.6	29.4	15.7

---

[15] Note. Employment status category is noted with E and unemployment status category is noted with U.

Table 14 continued.												
Child's gender	Gender	Female						Male				
	Frequency	99						103				
	Procent	49						51				
	% by employmen t status	E		U				E		U		
		53		45				47		55		
Child care arrangemen t	Type of child care	Parental		Relative		Nonrelative			Center			
	Frequency	176		17		0			4			
	Percent	89.3		86.3		-			20.3			
	% by employmen t status	E	U	E	U	E	U		E	U		
		86	92.7	11	6.2	-	-		3	1.0		
Mothers' age distribution	Age	<20		21-25		26-30		31-35		36-40		>40
	Frequency	21		104		62		9		7		0
	Percent	10.3		51.2		30.5		44.3		34.5		-
	% by employmen t status	E	U	E	U	E	U	E	U	E	U	E	U
		11.8	8.9	54.9	47.5	27.4	33.7	2.9	5.9	2.9	4.0	-	-
Mothers' educational level	Ed. level	<High school		High school		College			Higher ed.			
	Frequency	54		132		15			2			
	Percent	26.6		65.0		73.9			9.9			
	% by employmen t status	E	U	E	U	E	U		E	U		
		30.4	22.8	63.7	66.3	4.9	9.9		0.98	0.99		
Mothers' marital status	Status	Single				Married						
	Frequency	28				172						
	Percent	14				86						
	% by employmen t status	E		U		E			U			
		15.8		12.1		84.2			87.9			
Family income	Income	Low		Medium		High						
	Frequency	88		91		11						
	Percent	46.3		47.9		57.9						
	% by employment status	E	U	E	U	E	U					
		50.5	41.9	42.3	53.8	7.2	4.3					
Maternal employment status	Status	Employed				Unemployed						
	Frequency	102				102						
	Percent	50				50						
	% by employment status	NA										

Table 14 continued.								
# of hours worked	Employment type			Part-time		Full-time		
	Frequency			61		27		
	Percent			69.3		30.7		
	% by employment status			E	U	E		U
				69.3	NA	30.7		NA
Period of maternal employment	Period	First 3 months		First 6 months		First 9 months		First 12 months
	Frequency	15		5		9		36
	Percent	32.1		77		13.8		55.4
	% by employmen t status	E	U	E	U	E	U	E	U
		23.1	NA	7.7	NA	13.8	NA	55.4	NA

Detailed explanation of the dependent variable.

The minimum value the *behavior* variable could take is one (1 - *just a little*), meaning that mothers reported the *just a little* likelihood that their children frequently exhibit one category-behavior and reported the *not at all* likelihood for the rest of the behavior categories (situation indicating no behavior problems in children). The maximum value reported is 64, meaning that the respondents reported their children frequently exhibiting behavior problems. The variable mean is 22.02, meaning that, in average, children exhibit behavior problems with a moderate frequency. However, there are children in the sample less frequently exhibiting behavior problems, which makes the dispersion for this variable to be 11.55. As shown in the following table, 171 mothers reported their children's behavioral problems – there are 33 missing values. Again, given the missing data, there is the possibility that the researcher makes the logical Type II error.

Table 15. Statistics for the *behavior* variable.

```
Variable |        Obs        Mean    Std. Dev.         Min        Max
-------------+-----------------------------------------------------------
behavior |        171    22.02339     11.5463           1         64
```

Table 16 and Figure 5 illustrate that 7.02% of children exhibit behavior problems with a moderate frequency and 5.8% of children frequently exhibit behavior problems.

Table 16. Frequency of behavior problems.

```
Child |am c
behavior |            Freq.     Percent      Cum.
-------------+------------------------------------
    1 |              1        0.58        0.58
    2 |              3        1.75        2.34
    3 |              2        1.17        3.51
    4 |              1        0.58        4.09
    5 |              1        0.58        4.68
    6 |              1        0.58        5.26
    7 |              1        0.58        5.85
    9 |              5        2.92        8.77
   10 |              5        2.92       11.70
   11 |              6        3.51       15.20
   12 |              6        3.51       18.71
   13 |             11        6.43       25.15
   14 |              5        2.92       28.07
   15 |              6        3.51       31.58
   16 |              6        3.51       35.09
   17 |              7        4.09       39.18
   18 |              6        3.51       42.69
   19 |              1        0.58       43.27
   20 |              7        4.09       47.37
   21 |              7        4.09       51.46
   22 |             12        7.02       58.48
   23 |              8        4.68       63.16
   24 |              2        1.17       64.33
   25 |              5        2.92       67.25
   26 |              8        4.68       71.93
   27 |              4        2.34       74.27
   28 |              7        4.09       78.36
   29 |              2        1.17       79.53
   30 |              3        1.75       81.29
   31 |              3        1.75       83.04
   32 |              2        1.17       84.21
   33 |              6        3.51       87.72
   34 |              2        1.17       88.89
   36 |              1        0.58       89.47
   37 |              3        1.75       91.23
   38 |              1        0.58       91.81
```

Table 16 continued.

39	2	1.17	92.98
40	2	1.17	94.15
41	1	0.58	94.74
42	1	0.58	95.32
43	1	0.58	95.91
47	1	0.58	96.49
48	1	0.58	97.08
53	1	0.58	97.66
59	1	0.58	98.25
61	2	1.17	99.42
64	1	0.58	100.00
Total	171	100.00	

Figure 5: Frequency of behavioral problems
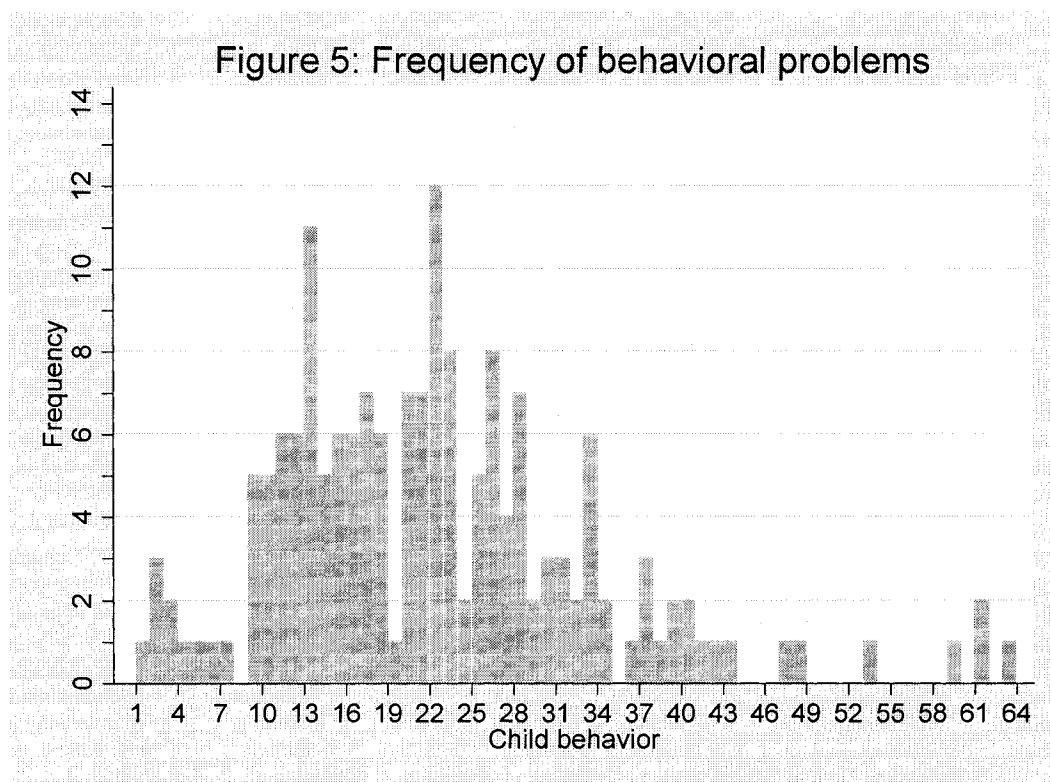
Dependent variable's distribution.

Table 17 and 18 and Figure 5.1 illustrate a skewness value of 1.049378, which indicates that the variable is positively skewed. The Kurtosis value for the behavior variable is 4.804222 (K>3), meaning that the variable distribution has a

heavier-than-normal tail (sharp peak). Considering the mean, median, and mode values, the *behavior* variable is not normally distributed (mean>median, mean>mode). Considering the Skewness and Kurtosis tests for normality (table 18), variable behavior appears significantly nonnormal in skewness (P=0.000), tail weight (Kurtosis, P=0.001), and in both statistics considered together (P=0.0000)[16].

Table 17. Summary statistics for *behavior* variable.

```
                        Child behavior
-----------------------------------------------------------------
        Percentiles     Smallest
  1%         2              1
  5%         6              2
 10%        10              2        Obs               171
 25%        13              2        Sum of Wgt.       171

 50%        21                       Mean          22.02339
                        Largest      Std. Dev.      11.5463
 75%        28             59
 90%        37             61        Variance      133.3171
 95%        42             61        Skewness      1.049378
 99%        61             64        Kurtosis      4.804222
```

Table 18. Skewness and Kurtosis tests for normality (*behavior* variable).

```
       Skewness/Kurtosis tests for Normality
                                          ------- joint ------
   Variable |  Pr(Skewness)   Pr(Kurtosis)  adj chi2(2)    Prob>chi2
------------+------------------------------------------------------
   behavior |     0.000          0.001          26.76        0.0000
```

---

[16] The fact that the dependent variable is not normally distributed and skewed, makes the behavioral problems variable not an ideal candidate for a regression analysis (since regression requires a normally distributed variable).

Figure 5.1: Frequency of behavioral problems, Gaussian curve
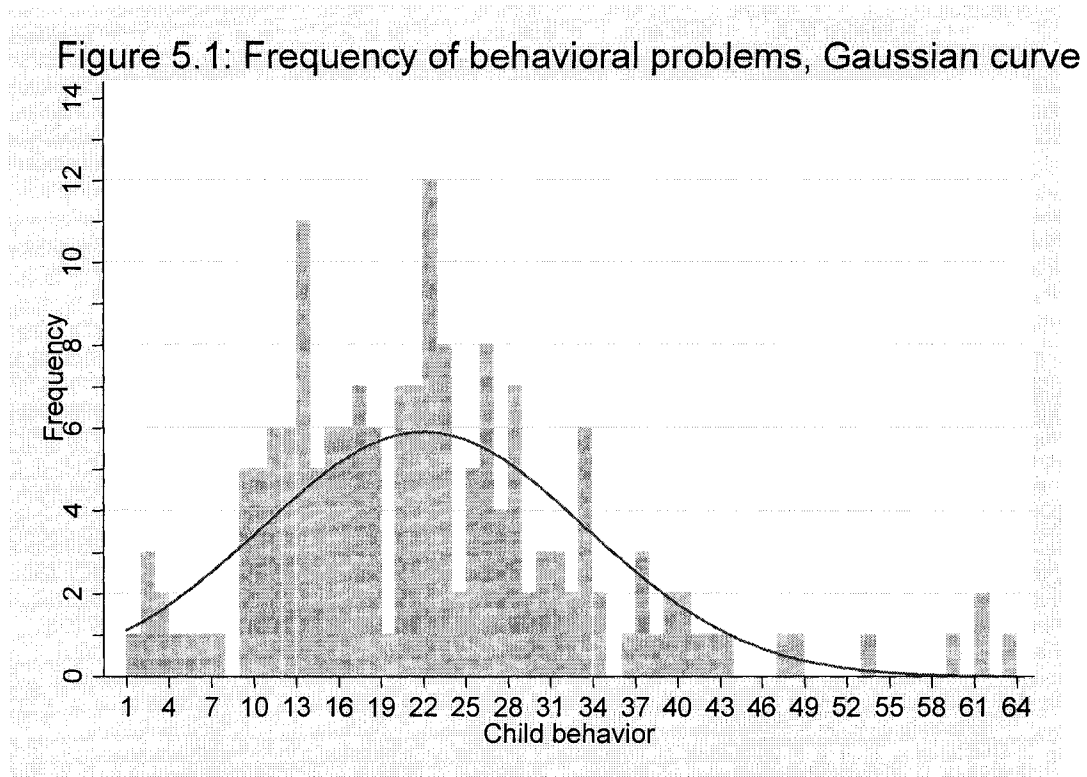
Inferential Statistics

The *bivariate statistical analysis* is used to describe the statistical relationship between variables (Neuman, 2006). The correlation coefficient illustrates whether a positive or a negative relationship exists between two variables (Neuman, 2006). Given the fact that central tendency measures (Table 20) indicate that children whose mothers were employed during their first year of life are more likely to exhibit behavioral problems that those whose mothers were unemployed during that period of time (however, there is a small difference between the means and latter tests illustrate no statistically significant relationship between maternal employment and children's behavioral problems) and that the behavioral problems data (histogram) indicate a tendency toward a normal distribution, the parametric inferential statistics will be used for

hypotheses testing. Being more statistically sensitive, the t-test is chosen to test the study's hypotheses. The hypotheses are confirmed at a t-test value above 1.96. The level of statistical significance is calculated to illustrate how confident the researcher is that the sample results are not due to chance factors in random sampling, but reflect a true relationship between the two variables in the population (Neuman, 2006). At an alpha level above .05 the hypotheses are rejected. This means that the researcher wants to be no less than 95 percent confident that the results are not due to chance factors (Sociological Methods I class notes, personal communication, October 16, 2006; Neuman, 2006). To test the statistical hypotheses when having three or more groups, the analysis of variance test (ANOVA) is used. The statistical analysis is conducted using the Stata 9 computer software.

To control for the Type I error and Type II error (Sociological Methods I class notes, personal communication, October 16, 2006; Wampler, Reifman, & Serovich, 2005), the researcher needs to correctly interpret the obtained level of significance (Neuman, 2006). The researcher is careful not to err by saying that a causal relationship exists between the variables when in reality there are random factors which actually cause the results (Type I error – falsely rejecting the null hypothesis) (Neuman, 2006; Cheng & Powell, 2005). Further, the researcher is careful not to make the logical error of inferring that the results are due to chance when in reality there is a causal relationship between the variables (Type II error – falsely accepting the null hypothesis) (Neuman, 2006).

Comparison of children's behavioral problems by mothers' employment status.

Table 19. Statistics for the *behavior* variable by mothers' employment status (1, employed mothers category).

```
                         Child behavior
    -----------------------------------------------------------------
         Percentiles      Smallest
     1%        1              1
     5%        7              2
    10%       11              5     Obs                        87
    25%       15              6     Sum of Wgt.                87

    50%       22                    Mean                  22.56322
                          Largest   Std. Dev.             11.23605
    75%       28             47
    90%       36             53     Variance              126.2489
    95%       43             59     Skewness              1.079585
    99%       61             61     Kurtosis              4.836977
```

Table 20. Statistics for the *behavior* variable by mothers' employment status (2, unemployed mothers category).

```
                         Child behavior
    -----------------------------------------------------------------
         Percentiles      Smallest
     1%        2              2
     5%        4              2
    10%        9              3     Obs                        84
    25%       12              3     Sum of Wgt.                84

    50%       21                    Mean                  21.46429
                          Largest   Std. Dev.             11.90064
    75%       28             42
    90%       37             48     Variance              141.6252
    95%       41             61     Skewness              1.042689
    99%       64             64     Kurtosis              4.78882
```

Table 21 (summary of table 19 and 20). Central tendency measures – behavioral problems per employment categories.

	Employed	Unemployed	Overall
Mean	22.56	21.46	22.02
Median	22	21	21
Mode	22	21	21

As shown in table 21, the average child behavioral problems for the employed mothers category is 22.56 and the average child behavioral problems for the unemployed mothers category is 21.46. The overall average child behavior problems is 22.02. Although these means suggest that children's whose mothers were employed during their first year of life have greater behavioral problems that those whose mothers were unemployed during that period of time, the difference between the means is small and latter tests illustrate no statistically significant relationship between maternal employment status and children's behavioral problems.

Figure 6: Behavior problems per employment status categories
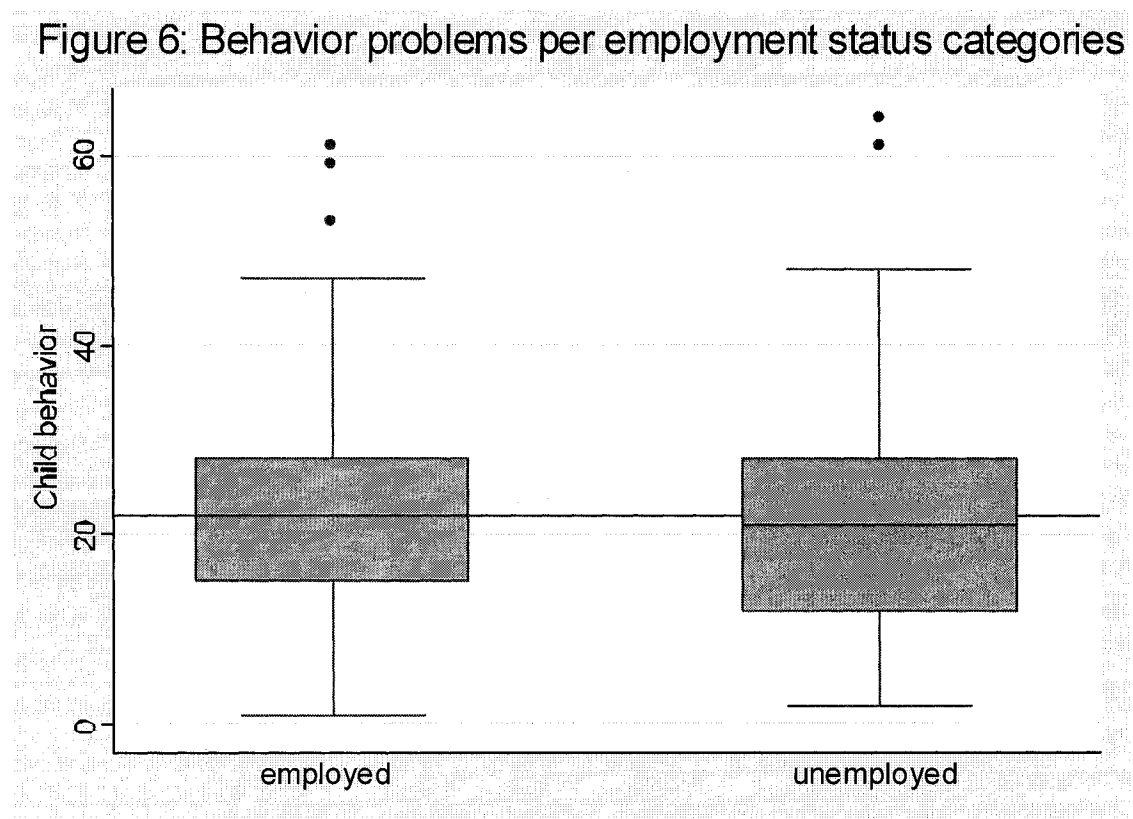
Figure 6 compares the distribution of behavioral problems over employment categories. Behavioral problems tend to be higher and less dispersed for the employed mothers category and lowest for the unemployed category. The yline (22.02) indicates the overall average behavioral problems. The average line for the unemployed category is lower than the average line for the employed category. The median and mode for the employed category are equal to 22 and equal to 21 for the unemployed category, meaning that behavioral problems are a more common behavior among children whose mothers were employed during their first year of life.

Table 22. Correlation between behavioral problems and employment status variables.

```
              | employed unempl-d behavior
--------------+---------------------------
   employed   |   1.0000
 unemployed   |  -1.0000   1.0000
   behavior   |   0.0477  -0.0477   1.0000
```

Table 22 illustrates the correlation between *behavior* and *employed* and *unemployed* variables (new created dummy-coded variables). Children's behavioral problems are positively correlated with the employed variable, meaning that children whose mothers were employed during their first year of life are likely to exhibit behavioral problems. Children behavior problems are negatively correlated with the unemployed variable, meaning that children whose mothers were unemployed during their first year of life are not likely to exhibit behavioral problems.

Comparison of children's behavioral problems by the number of hours worked per week during the child's first year of life.

Table 23. Statistics for the *behavior* variable by the number of hours worked per week during the child's first year of life (0, less than 30 hours per week category).

```
                        Child behavior
-----------------------------------------------------------------
        Percentiles    Smallest
  1%         1             1
  5%         6             5
 10%        13             6      Obs                     54
 25%        15             9      Sum of Wgt.             54

 50%        22                    Mean               23.35185
                       Largest    Std. Dev.          11.44496
 75%        29            43
 90%        36            47      Variance           130.9871
 95%        47            53      Skewness           .9484125
 99%        61            61      Kurtosis           4.493868
```

Table 24. Statistics for the *behavior* variable by the number of hours worked per week during the child's first year of life (1, 30 hours or more per week category).

```
                        Child behavior
-----------------------------------------------------------------
        Percentiles    Smallest
  1%         2             2
  5%         7             7
 10%        12            12      Obs                     21
 25%        15            13      Sum of Wgt.             21

 50%        18                    Mean               21.95238
                       Largest    Std. Dev.          12.76509
 75%        26            34
 90%        39            39      Variance           162.9476
 95%        40            40      Skewness           1.214155
 99%        59            59      Kurtosis           4.609659
```

Table 25 (summary of tables 23 and 24). Central tendency measures – behavioral problems per number of hours worked per week.

Category	< 30 hrs/ week	30 hrs or more/ week	Overall
Mean	23.35	21.95	22.02
Median	22	18	21
Mode	22	18	21

As shown in table 25, the average child behavioral problems for the less than 30 hours per week category is 23.35 and the average child behavioral problems for the 30 hours or more per week category is 21.95. The overall average child behavior problems is 22.02. Therefore, children's whose mothers worked less than 30 hours per week during their child's first year of life have greater behavioral problems that those whose mothers worked 30 hours or more per week.

Figure 7: Behavior problems per number of hours worked
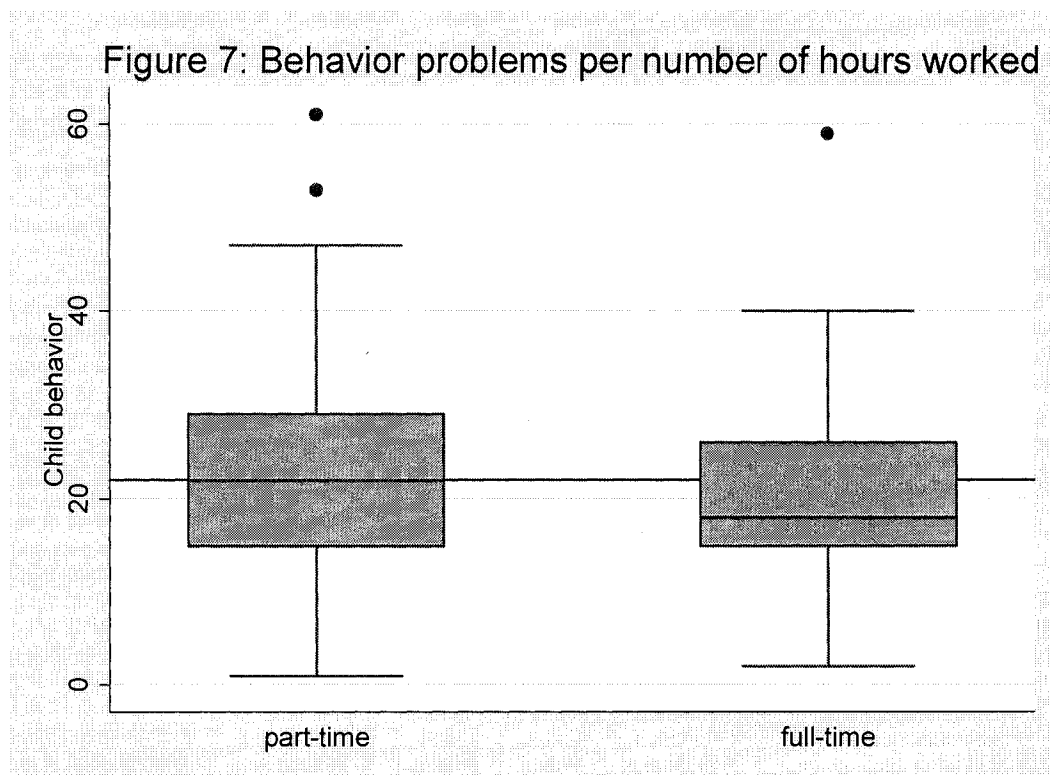
Figure 7 compares the distribution of behavioral problems over the number of hours worked by the mothers during their child's first year of life. Behavioral problems tend to be higher and more dispersed for those children whose mothers worked less than 30 hours per week during their first year of life and lowest for those whose mothers worked 30 hours or more per week. The yline (22.02) indicates the overall average behavioral problems. The average line for the *less than 30 hours per week* category is greater than the average line for the *30 hours or more per week* category. The median and mode for the *less than 30 hours per week* category are equal to 22 and equal to 18 for the *30 hours or more per week* category, meaning that behavioral problems are a more common behavior among children whose mothers worked less than 30 hours per week during their first year of life.

Table 26. Correlation between behavioral problems and number of hours worked per week variables.

```
             | parttime fulltime behavior
-------------+----------------------------
    parttime |   1.0000
    fulltime |  -0.2542   1.0000
    behavior |   0.0784  -0.0023   1.0000
```

Table 26 illustrates the correlation between *behavior* and *parttime* and *fulltime* variables (new created dummy-coded variables). Children's behavioral problems are positively correlated with the parttime variable, meaning that children whose mothers worked less than 30 hours per week during their first year of life are more likely to exhibit behavioral problems. Children behavior problems are negatively correlated with the fulltime variable, meaning that

children whose mothers worked 30 hours or more per week during their first year of life are less likely to exhibit behavioral problems.

Comparison of children's behavioral problems by the period of child's first year of life the mother entered the labor force market.

Table 27. Statistics for the *behavior* variable by the period of child's first year of life the mother entered the labor force market (1, the first 3 months category).

```
Child behavior
-----------------------------------------------------------------
        Percentiles      Smallest
  1%          2               2
  5%          2               6
 10%          2               7       Obs                    9
 25%          7              11       Sum of Wgt.            9

 50%         13                       Mean             19.33333
                          Largest     Std. Dev.        18.52026
 75%         18              18
 90%         59              18       Variance              343
 95%         59              40       Skewness         1.272065
 99%         59              59       Kurtosis         3.358293
```

Table 28. Statistics for the *behavior* variable by the period of child's first year of life the mother entered the labor force market (2, the first 6 months category).

```
                   Child behavior
-----------------------------------------------------------------
        Percentiles      Smallest
  1%         17              17
  5%         17              20
 10%         17              23       Obs                    5
 25%         20              29       Sum of Wgt.            5

 50%         23                       Mean                 24.4
                          Largest     Std. Dev.        6.542171
 75%         29              20
 90%         33              23       Variance             42.8
 95%         33              29       Skewness         .2398141
 99%         33              33       Kurtosis          1.58569
```

Table 29. Statistics for the *behavior* variable by the period of child's first year of

life the mother entered the labor force market (3, the first 9 months category).

```
                         Child behavior
      ------------------------------------------------------------
        Percentiles      Smallest
  1%         5                5
  5%         5               17
 10%         5               20      Obs                    7
 25%        17               26      Sum of Wgt.            7

 50%        26                       Mean            23.85714
                        Largest      Std. Dev.       11.33473
 75%        33               26
 90%        40               26      Variance        128.4762
 95%        40               33      Skewness       -.2589356
 99%        40               40      Kurtosis        2.400976
```

Table 30. Statistics for the *behavior* variable by the period of child's first year of

life the mother entered the labor force market (4, the first 12 months category).

```
                         Child behavior
      ------------------------------------------------------------
        Percentiles      Smallest
  1%        10               10
  5%        11               11
 10%        13               12      Obs                   32
 25%        14.5             13      Sum of Wgt.           32

 50%        22                       Mean             21.9375
                        Largest      Std. Dev.        8.381768
 75%        26.5             33
 90%        33               36      Variance        70.25403
 95%        39               39      Skewness        .7008623
 99%        43               43      Kurtosis         2.89158
```

Table 31 (summary of tables 27, 28, 29, and 30). Central tendency measures –

behavioral problems per period of child's first year of life the mother entered the

labor force market.

Category	First 3 months	First 6 months	First 9 months	First 12 months	Overall
Mean	19.33	24.4	23.85	21.93	22.02
Median	13	23	26	22	21
Mode	13	23	26	22	21

As shown in table 31, the average child behavioral problems for the *first 3 months* category is 19.33, the average child behavioral problems for the *first 6 months* category is 24.4, the average child behavioral problems for the *first 9 months* category is 23.85, and the average child behavioral problems for the *first 12 months* category is 21.93. The overall average child behavior problems is 22.02. Therefore, children's whose mothers entered the labor force market during their children's first 6 months of life are likely to have greater behavioral problems that those whose mothers entered the labor force market during their children's first 3 months of life. Children's whose mothers entered the labor force market during their children's first 12 months of life are less likely to have behavioral problems than those whose mothers were employed during their first 9 months of life.

Figure 8: Behavior problems per period of employment
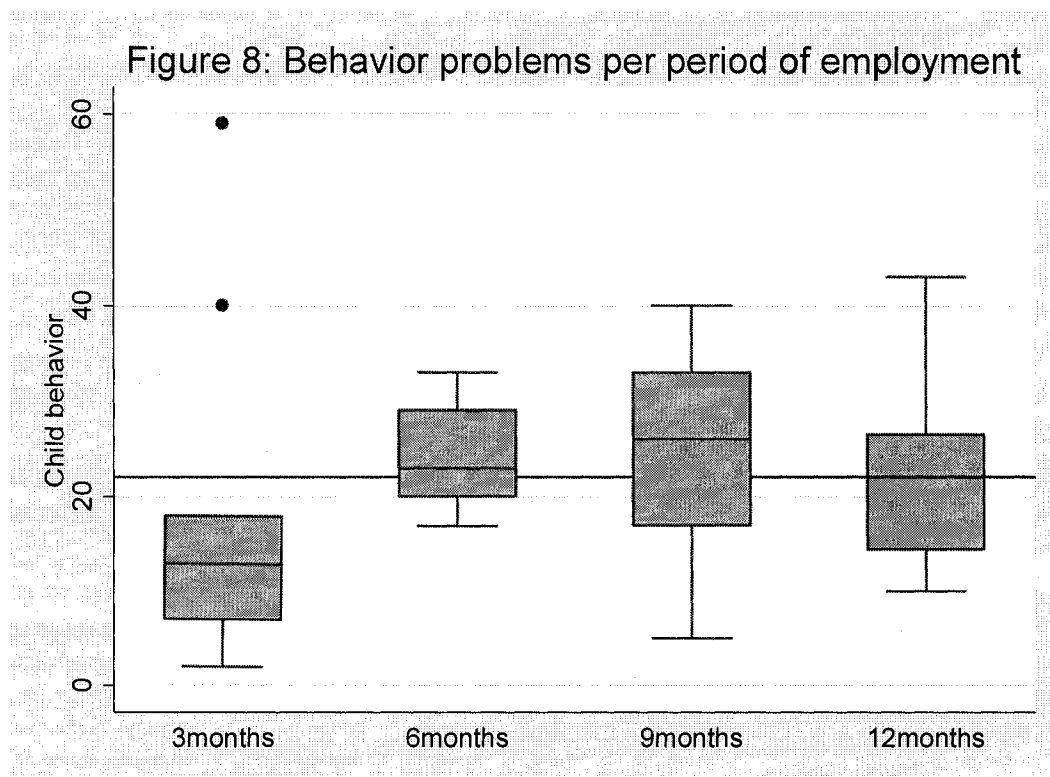
Figure 8 compares the distribution of behavioral problems over the period of child's first year of life the mother entered the labor force market. Behavioral problems are less likely to occur for those children whose mothers entered the labor market during their first 3 and 12 months of life and higher for those children whose mothers were employed during their first 6 and 9 months of life. The yline (22.02) indicates the overall average behavioral problems. The average lines for the first 6 and 9 months categories are greater than the average lines for the first 3 and 12 months categories. The median and mode for the first 6 and 9 months categories are equal to 23 and 26 respectively and equal to 13 and 22 respectively for the first 3 and 12 months categories, meaning that behavioral problems are a more common behavior among children whose mothers entered the labor force market during their first 6 and 9 months of life and a less common behavior among children whose mothers entered the labor force market during their first 3 and 12 months of life.

Table 32. Correlation between behavioral problems and the period of child's first year of life the mother entered the labor force market.

```
             | threem~s    sixmon~s  ninemo~s twelve~s behavior
-------------+-----------------------------------------------------
 threemonths |   1.0000
   sixmonths |  -0.0409    1.0000
  ninemonths |  -0.0487   -0.0359    1.0000
twelvemonths |  -0.1131   -0.0833   -0.0991    1.0000
    behavior |  -0.0551    0.0358    0.0329   -0.0036    1.0000
```

Table 32 illustrates the correlation between *behavior* and *threemonths*, *sixmonths, ninemonths*, and *twelvemonths* variables (new created dummy-coded variables). Children's behavioral problems are positively correlated with the *sixmonths* and *twelvemonths* variables - meaning that children whose mothers

entered the labor market during their first 6 and 9 months of life are more likely to exhibit behavioral problems – and negatively correlated with the *threemonths* and *twelvemonths* variables - meaning that children whose mothers entered the labor market during their first 3 and 12 months of life are less likely to exhibit behavioral problems.

Hypotheses testing.

Hypothesis 1: Children whose mothers are employed during their first year of life are more likely to have later behavioral problems than children whose mothers are not employed during their first year of life.

This hypothesis is tested by estimating the effects of maternal employment during the child's first year of life on the child's later behavioral problems.

Hypothesis: There are employment status differences in the frequency of children's behavioral problems. That is, children whose mothers worked during their first year of life are more likely to have later behavioral problems than those whose mothers did not work during that period of time.

Null hypothesis: There are no differences between the two groups' means, that is, children whose mothers worked and those whose mothers did not worked during their first year of life have the same likelihood to exhibit later behavioral problems.

Table 33. Two group t-test: Employment status differences in the frequency of children's later behavioral problems.

```
Two-sample t test with equal variances
--------------------------------------------------------------------------
   Group |     Obs       Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+----------------------------------------------------------------
employed |      87   22.56322    1.204631    11.23605    20.16849    24.95795
unemployed|     84   21.46429    1.298466    11.90064    18.88169    24.04688
---------+----------------------------------------------------------------
combined |     171   22.02339    .8829678     11.5463     20.2804    23.76639
---------+----------------------------------------------------------------
    diff |            1.098933    1.769407                -2.394055     4.59192
--------------------------------------------------------------------------
-------
    diff = mean(1) - mean(2)                              t =    0.6211
Ho: diff = 0                                degrees of freedom =       169

   Ha: diff < 0              Ha: diff != 0                  Ha: diff > 0
 Pr(T < t) = 0.7323     Pr(|T| > |t|) = 0.5354          Pr(T > t) = 0.2677
```

t=0.6211; Critical value $_{(169df,\ \alpha=.05)}$ = 1.96 → t<1.96 → there is no statistically significant difference between the means. Therefore, the t-test fails to reject the null hypothesis at the 95% level of confidence.

Another way to see whether the differences between the means are statistically significant is to look at the p-value: p=0.5354; p>.05 → the probability that the difference is due to chance, random sampling error is greater than .05. Therefore, the t-test fails to reject the null hypothesis.

By looking at table 33 we can see that the mean of behavioral problems for those children whose mothers were employed during their first year of life = 22.56322 and the mean behavioral problems for those children whose mothers were unemployed = 21.46429. Since the t-test is telling us that the mean differences are not statistically significant, we can infer that there are not differences in behavioral problems for both children whose mothers worked and those whose mothers did not work during their first year of life.

Conclusion: Considering the information provided in table 33, it can be expected in the population for children of employed and unemployed mothers to have the same likelihood of exhibiting behavioral problems later in life.

Hypothesis 1.1.: Children whose mothers are employed earlier during their first year of life are more likely to have later behavioral problems than children whose mothers are employed later during their first year of life.

This hypothesis is tested by examining the effects of the quarter (maternal employment during the first three months, six months, nine months, or 12 months) of the first year of the child's life in which the mother enrolled in the labor force on child's behavioral problems.

Hypothesis: There are period of employment differences in the frequency of children's behavioral problems. That is, children whose mothers entered the labor market during their first three months of life are more likely to exhibit later behavioral problems than those whose mothers enrolled the labor force during their first six, nine, or 12 months of life.

Null hypothesis: There are no differences between the six groups' means, that is, children whose mothers entered the labor market during their first three, six, nine, or 12 months of life have the same likelihood to exhibit later behavioral problems.

Table 34. Oneway analysis of variance: Period of mothers' employment differences in the frequency of children's later behavioral problems.

```
Period of |
   child's |
first year |
of life the |
    mother |
   entered |    Summary of Child behavior
labor force |     Mean    Std. Dev.       Freq.
------------+-----------------------------------
   3months |  19.333333   18.520259           9
   6months |       24.4   6.5421709           5
   9months |  23.857143   11.334734           7
  12months |    21.9375   8.3817678          32
------------+-----------------------------------
     Total |  21.981132   10.724685          53
```

```
                    Analysis of Variance
    Source           SS        df      MS          F      Prob > F
-------------------------------------------------------------------
Between groups    117.048989    3   39.0163297    0.33    0.8065
Within groups     5863.93214   49   119.672085
-------------------------------------------------------------------
    Total         5980.98113   52   115.018868
```

Bartlett's test for equal variances: chi2(3) = 11.0927 Prob>chi2 = 0.011

```
                    Comparison of Child behavior
      by Period of child's first year of life the mother entered labor force
                               (Scheffe)
Row Mean- |
Col Mean  |   3months      6months      9months
----------+-----------------------------------
  6months |   5.06667
          |     0.875
          |
  9months |   4.52381    -.542857
          |     0.879       1.000
          |
 12months |   2.60417     -2.4625     -1.91964
          |     0.940       0.974       0.981
```

F-ratio = 0.33; Critical $F_{(3, 49 \, df, \, \alpha=.05)}$ = 2.76; → F-ratio<Critical F; p-value = .8065; p-value>α (p>.05) → fail to reject the null hypothesis. This means that when we have a Critical F $_{(\alpha=.05)}$ = 2.76 and the null hypothesis in true, with repeated sampling, it is expected that the F-ratio will equal or exceed 2.76 only 5% of the time.

For the purposes of this project the $\alpha=.05$ (the 95% confidence interval) is considered.

At $\alpha=.05$ ANOVA fails to reject the null hypothesis and, therefore, there are no statistically significant period of mothers' employment differences in the frequency of children's later behavioral problems. To see the mean differences between each pair of means and be able to tell which periods of employment tend to have the most/least frequency of behavioral problems, the Scheffe table (in table 34) is considered. The first 6 months mean = 24.4 and the first 3 months mean = 19.33, so the first 6 months – the first 3 months mean difference is 5.06667, not statistically different from zero (p=.875). The first 9 months mean = 23.86 and the first 3 months = 19.33, so the first 9 months – the first 3 months mean difference is 4.52381, not statistically different from zero (p=.879).

The first 9 months mean = 23.86 and the first 6 months = 24.4, so the first 9 months – the first 6 months mean difference is -.542857, not statistically different from zero (p=1.000). The first 12 months mean = 21.94 and the first 3 months = 19.33, so the first 12 months – the first 3 months mean difference is 2.60417, not statistically different from zero (p=.940). The first 12 months mean = 21.94 and the first 6 months = 24.4, so the first 12 months – the first 6 months mean difference is -2.4625, not statistically different from zero (p=.974). The first 12 months mean = 21.94 and the first 9 months = 23.86, so the first 12 months – the first 9 months mean difference is -1.91964, not statistically different from zero (p=.981).

Children whose mothers enrolled in the labor force during their first 6 months of life tend to have the largest frequency of behavioral problems (mean = 24.4), followed by those whose mothers enrolled in the labor force during their first 9 and 12 months of life. Children whose mothers entered the labor force during their first 3 months of life tend to have the least frequency of behavioral problems. However, the differences in the frequency of behavioral problems are not statistically significant. According to the Scheffe table (table 33) the first 6 months-first 3 months group is more likely to have differences in the frequency of behavioral problems and the first 9 months-first 6 months group is the least likely to have differences is the frequency of behavioral problems. However, these differences are not statistically significant. Consequently, the overall conclusion from the Scheffe table is that the six pairs of groups have statistically similar means. Therefore, there are no differences among the six pairs' means (not considering the grand mean), that is, children whose mothers enrolled in the labor force during their first 6 months-first 3 months of life, the first 9 months-first 3 months of life, the first 9 months-first 6 months of life, the first 12 months-first 3 months of life, the first 12 months-the first 6 months of life, and the first 12 months-the first 9 months of life have the same frequency of behavioral problems later in life.

Conclusion: the hypothesis is rejected: the effects of maternal employment do not tend to be larger when maternal employment occurs earlier in the child's first year of life. However, given the small N (missing data – out of 102 employed mothers, 53 reported their employment period), there is the possibility that the

researcher makes the logical error of inferring that the results are due to chance when in reality there is a causal relationship between the variables (Type II error – falsely accepting the null hypothesis).

Hypothesis 1.2.: Children whose mothers work 30 or more hours per week during their first year of life are more likely to have later behavioral problems than children whose mothers worked fewer than 30 hours during their first year of life.

This hypothesis is tested by examining the effects of full-time (30 or more hours per week) and part-time employment (less than 30 hours per week) on child's behavioral problems.

Hypothesis: There are part-time/full-time employment differences in the frequency of children's behavioral problems. That is, children whose mothers worked 30 or more hours per week during their first year of life are more likely to have later behavioral problems than those whose mothers worked less than 30 hours per week during that period of time.

Null hypothesis: There are no differences between the two groups' means, that is, children whose mothers worked 30 or more hours per week and those whose mothers worked less than 30 hours per week during their first year of life have the same likelihood to exhibit later behavioral problems.

Table 35. Two group t-test: Part-time/full-time employment differences in the frequency of children's later behavioral problems.

```
Two-sample t test with equal variances
--------------------------------------------------------------------------------
   Group |     Obs       Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
---------+----------------------------------------------------------------------
part-time |      54   23.35185    1.557462    11.44496    20.22798    26.47572
full-time |      21   21.95238    2.785572    12.76509    16.14178    27.76298
---------+----------------------------------------------------------------------
combined |      75      22.96    1.357719    11.75819    20.25469    25.66531
---------+----------------------------------------------------------------------
    diff |            1.399471    3.040113               -4.659466     7.458408
--------------------------------------------------------------------------------
    diff = mean(part-tim) - mean(full-tim)                    t =    0.4603
Ho: diff = 0                                    degrees of freedom =        73

   Ha: diff < 0                 Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.6767       Pr(|T| > |t|) = 0.6466        Pr(T > t) = 0.3233
```

t=0.4603; Critical value $_{(73df,\ \alpha=.05)}$ = 2.00 → t<2.00 → there is no statistically significant difference between the means. Therefore, the t-test fails to reject the null hypothesis at the 95% level of confidence.

p=0.6466; p>.05 → the probability that the difference is due to chance, random sampling error is greater than .05. Therefore, the t-test fails to reject the null hypothesis.

By looking at table 35 we can see that the mean of behavioral problems for those children whose mothers were employed less than 30 hours per week during their first year of life = 23.35185 and the mean behavioral problems for those children whose mothers worked 30 or more hours per week = 21.95238. Since the t-test is telling us that the mean differences are not statistically significant, we can infer that there are not differences in behavioral problems for both children whose mothers worked less than 30 hours per week and for those whose mothers worked 30 or more hours per week during their first year of life.

Conclusion: Considering the information provided in table 35, it can be expected in the population for children of part-time employed and full-time employed mothers to have the same likelihood of exhibiting behavioral problems later in life.

Hypothesis 1.3.: Children whose mothers have higher educational levels during their first year of life are more likely to have later behavioral problems than children's whose mothers have lower educational levels during their first year of life.

This hypothesis is tested by testing the effects of mother's education level during the first year of the child's life on child's behavioral problems.

Hypothesis: There are maternal educational level differences in the frequency of children's behavioral problems. That is, children whose mothers have higher educational levels have higher likelihoods of exhibiting behavioral problems than those whose mothers have lower educational levels.

Null hypothesis: There are no differences between the six groups' means, that is, children whose mothers have higher educational levels and those whose mothers have lower educational levels have the same likelihood to exhibit later behavioral problems.

Table 36. Oneway analysis of variance: Maternal educational level differences in the frequency of children's later behavioral problems[17].

```
        Mother's        |
      educational        |      Summary of Child behavior
         level           |       Mean      Std. Dev.         Freq.
-------------+-------------------------------------------
 less than high school |    21.956522    12.859854            46
           high school |    22.362832    11.447132           113
      college graduate |    21.444444     5.027701             9
higher education graduate |        10    1.4142136             2
-------------+-------------------------------------------
       Total |    22.058824    11.571085              170
```

```
                        Analysis of Variance
     Source            SS          df       MS            F       Prob > F
    ---------------------------------------------------------------------
 Between groups    305.152605       3    101.717535      0.76      0.5201
 Within groups      22322.2592     166   134.471441
    ---------------------------------------------------------------------
     Total          22627.4118     169   133.89001
```

Bartlett's test for equal variances: chi2(3) =   9.9028   Prob>chi2 = 0.019

```
          Comparison of Child behavior by Mother's educational level
                              (Scheffe)
Row Mean-|
Col Mean |   less tha   high sch    college
---------+---------------------------------
high sch |    .40631
         |    0.998
         |
college  |   -.512077   -.918387
         |    1.000      0.997
         |
higher ed|   -11.9565   -12.3628    -11.4444
         |    0.566      0.527       0.661
```

F-ratio = 0.76; Critical $F_{(3, 166 \, df, \alpha=.05)}$ = 2.60; → F-ratio<Critical F; p-value = .5201; p-value>α (p>.05) → fail to reject the null hypothesis. This means that when we have a Critical F $_{(\alpha=.05)}$ = 2.60 and the null hypothesis in true, with repeated sampling, it is expected that the F-ratio will equal or exceed 2.60 only 5% of the time.

---

[17] Only two mothers in the sample have higher education diplomas, nine have college graduate diplomas, and 113 have high school diplomas, therefore, the maternal educational level variable does not have much variance → possibility of type II error (logical error of inferring that the results are due to chance when in reality there is a causal relationship between the variables).

At α=.05 ANOVA fails to reject the null hypothesis and, therefore, there are no statistically significant maternal educational level differences in the frequency of children's later behavioral problems. To see the mean differences between each pair of means and be able to tell which maternal educational level tend to have the most/least frequency of behavioral problems, the Scheffe table (table 36) is considered. The *high school diploma* mean = 22.36 and the *less than high school* mean = 21.96, so the high school diploma - the less than high school mean difference is .40631, not statistically different from zero (p=.998). The college graduate mean = 21.44 and the less than high school mean = 21.96, so the college graduate – less than high school mean difference is -.512077, not statistically different from zero (p=1.000). The college graduate mean = 21.44 and the high school diploma = 22.36, so the college graduate – the high school diploma mean difference is -.918387, not statistically different from zero (p=.997). The higher education graduate mean = 10 and the less than high school mean = 21.96, so less than high school mean difference is -11.9565, not statistically different from zero (p=.566). The higher education graduate mean = 10 and the high school diploma mean = 22.36, so the higher education graduate – high school diploma mean difference is -12.3628, not statistically different from zero (p=.527). The higher education graduate mean = 10 and the college graduate mean = 21.44, so the higher education graduate - the college graduate mean difference is -11.4444, not statistically different from zero (p=.661).

Children whose mothers have high school diplomas tend to have the largest frequency of behavioral problems (mean = 22.36), followed by those

whose mothers have less than high school education and those who are college graduates. Children whose mothers have higher education diplomas tend to have the least frequency of behavioral problems. However, the differences in the frequency of behavioral problems are not statistically significant. According to the Scheffe table (table 36) the higher education graduate – high school diploma group is more likely to have differences in the frequency of behavioral problems and the college graduate – less than high school group is the least likely to have differences is the frequency of behavioral problems. However, these differences are not statistically significant. Consequently, the overall conclusion from the Scheffe table is that the six pairs of groups have statistically similar means. Therefore, there are no differences among the six pairs' means (not considering the grand mean), that is, children whose mothers have less than high school diplomas, high school diplomas, college graduate diplomas, and higher education graduate diplomas have the same likelihood of exhibiting behavioral problems later in life.

Conclusion: the hypothesis is rejected: children whose mothers have higher educational levels do not have higher likelihoods of exhibiting behavioral problems than those whose mothers have lower educational levels.

Hypothesis 1.4.: Children from lower income families are more likely to have later behavioral problems than children whose mothers had high family incomes during the first year of the child's life.

This hypothesis is tested by testing the effects of income level on later behavioral problems for children.

Hypothesis: There are income level differences in the frequency of children's behavioral problems. That is, children of low income families have higher likelihoods of exhibiting behavioral problems than those of high-income families.

Null hypothesis: There are no differences between the three groups' means, that is, children of low-income families and those of high-income families have the same likelihood to exhibit behavioral problems.

Table 37. Oneway analysis of variance: family income differences in the frequency of children's later behavioral problems.

```
   Actual |
   monthly |
   family |        Summary of Child behavior
   income |      Mean        Std. Dev.        Freq.
------------+-----------------------------------------
   low-income |   20.647887   10.866855          71
medium income |   22.717949   11.210961          78
  high income |   23.909091   11.886585          11
------------+-----------------------------------------
      Total |    21.88125    11.092732          160


                  Analysis of Variance
   Source           SS         df        MS            F       Prob > F
-----------------------------------------------------------------------------
Between groups     207.842604    2     103.921302     0.84      0.4324
Within groups      19356.9011  157     123.292364
-----------------------------------------------------------------------------
   Total           19564.7437  159     123.048703

Bartlett's test for equal variances:  chi2(2) =    0.1722   Prob>chi2 = 0.917

           Comparison of Child behavior by Actual monthly family income
                               (Scheffe)
Row Mean-          |
Col Mean           |    low-inc     medium income
----------+---------------------------------
medium income |     2.07006
              |     0.526

              |
high income   |     3.2612       1.19114
              |     0.664        0.946
```

F-ratio = 0.84; Critical $F_{(2, 157 df, \alpha=.05)}$ = 3.00; → F-ratio<Critical F; p-value = .4324; p-value>α (p>.05) → fail to reject the null hypothesis. This means that

when we have a Critical F $_{(\alpha=.05)}$ = 3.00 and the null hypothesis in true, with repeated sampling, it is expected that the F-ratio will equal or exceed 3.00 only 5% of the time.

At α=.05 ANOVA fails to reject the null hypothesis and, therefore, there are no statistically significant family income differences in the frequency of children's later behavioral problems. To see the mean differences between each pair of means and be able to tell which maternal educational level tend to have the most/least frequency of behavioral problems, the Scheffe table (table 37) is considered. The *medium income* mean = 22.72 and the *low-income* mean = 20.65, so the medium income – low-income mean difference is 2.07006, not statistically different from zero (p=.526). The *high income* mean = 23.91 and the *low-income* mean = 20.65, so the high income – low-income mean difference is - 3.2612, not statistically different from zero (p=.664). The *high income* mean = 23.91 and the medium income mean = 22.72, so the high income - medium income mean difference is 1.19114, not statistically different from zero (p=.946).

Children of high-income families tend to have the largest frequency of behavioral problems (mean = 23.91), followed by those whose of medium income families. Children of low income families tend to have the least frequency of behavioral problems. However, the differences in the frequency of behavioral problems are not statistically significant. According to the Scheffe table (table 37) the medium income – low-income group is more likely to have differences in the frequency of behavioral problems and the high income - medium income group is the least likely to have differences is the frequency of behavioral problems.

However, these differences are not statistically significant. Consequently, the overall conclusion from the Scheffe table is that the three pairs of groups have statistically similar means. Therefore, there are no differences among the three pairs' means (not considering the grand mean), that is, children of low income, medium income, and high income families have the same likelihood of exhibiting behavioral problems later in life.

Conclusion: the hypothesis is rejected: children of low income families do not have higher likelihoods of exhibiting behavioral problems than those of high-income families.

Hypothesis 1.5: Children placed in non-maternal child care during their first year of life are more likely to have later behavioral problems than those cared for by their parents.

This hypothesis is tested by examining the effects of child care (parental, relative, nonrelative, and center care) on children's later behavioral problems for children.

Hypothesis: There are child care arrangement differences in the frequency of children's behavioral problems. That is, children placed in non-maternal child care during their first year of life have higher likelihoods of exhibiting behavioral problems.

Null hypothesis: There are no differences between the four groups' means, that is, children placed in non-maternal child care during their first year of life and those cared for by their mothers have the same likelihoods of exhibiting behavioral problems later in life.

Table 38. Oneway analysis of variance: child care type differences in the frequency of children's later behavioral problems[18].

```
Child care |      Summary of Child behavior
arrangement |      Mean    Std. Dev.      Freq.
------------+------------------------------------
   parental |   22.244898   11.830765        147
   relative |          25    8.026741         15
   center ca |  16.333333    9.504385          3
------------+------------------------------------
      Total |   22.387879   11.511706        165


                    Analysis of Variance
       Source           SS        df      MS          F      Prob > F
      ------------------------------------------------------------------
Between groups      215.325417      2   107.662709     0.81    0.4464
Within groups       21517.8503    162   132.826237
      ------------------------------------------------------------------
       Total        21733.1758    164   132.519364


Bartlett's test for equal variances:   chi2(2) =    2.9713  Prob>chi2 = 0.226

           Comparison of Child behavior by Child care arrangement
                                (Scheffe)
Row Mean-|
Col Mean |   parental    relative
---------+-------------------------
relative |     2.7551
         |     0.678
         |
center   |    -5.91156    -8.66667
         |     0.680       0.495
```

F-ratio = 0.81; Critical $F_{(2, 162\ df,\ \alpha=.05)}$ = 3.00; → F-ratio<Critical F; p-value = .4464, p-value>α (p>.05) → fail to reject the null hypothesis. This means that when we have a Critical F $_{(\alpha=.05)}$ = 3.00 and the null hypothesis in true, with repeated sampling, it is expected that the F-ratio will equal or exceed 3.00 only 5% of the time.

At α=.05 ANOVA fails to reject the null hypothesis and, therefore, there are no statistically significant child care type differences in the frequency of

---

[18] Only three children were placed in center care, 15 in relative care, and no children were placed in nonrelative care during their first year of life, therefore, the child care type variable does not have much variance → possibility of type II error (logical error of inferring that the results are due to chance when in reality there is a causal relationship between the variables).

children's later behavioral problems. To see the mean differences between each pair of means and be able to tell which maternal educational level tend to have the most/least frequency of behavioral problems, the Scheffe table (table 38) is considered. The relative care (category 2) mean = 25 and the parental care mean = 22.24, so the relative care – parental care mean difference is 2.7551, not statistically different from zero (p=.678). The center care mean = 16.33 and the parental care mean = 22.24, so the center care – parental care mean difference is -5.91156, not statistically different from zero (p=.680). The center care mean = 16.33 and the relative care mean = 25, so the center care – relative care mean difference is -8.66667, not statistically different from zero (p=.495). The third category (nonrelative care) is missing from the data (table 38), meaning that no child in the sample was placed in the nonrelative care during his/her first year of life.

Children placed in relative care during their first year of life tend to have the largest frequency of behavioral problems (mean = 25), followed by those whose placed in parental care. Children enrolled in center care tend to have the least frequency of behavioral problems. However, the differences in the frequency of behavioral problems are not statistically significant. According to the Scheffe table (table 37) the center care – relative care group is more likely to have differences in the frequency of behavioral problems and the center care – parental care group is the least likely to have differences is the frequency of behavioral problems. However, these differences are not statistically significant. Consequently, the overall conclusion from the Scheffe table is that the three pairs

of groups have statistically similar means. Therefore, there are no differences among the three pairs' means (not considering the grand mean), that is, children placed in parental care, relative care, nonrelative care, and center care have the same likelihood of exhibiting behavioral problems later in life.

Conclusion: the hypothesis is rejected: children placed in non-maternal child care during their first year of life do not have higher likelihoods of exhibiting behavioral problems later in life. However, given the small N (missing data), there is the possibility that the researcher makes the logical error of inferring that the results are due to chance when in reality there is a causal relationship between the variables (Type II error – falsely accepting the null hypothesis).

Hypothesis 1.6: Children from single-parent families are more likely to have later behavioral problems than those from two-parent families.

This hypothesis is tested by estimating the effects of single and two-parent family status on children's later behavioral problems.

Hypothesis: There are family type differences in the frequency of children's behavioral problems. That is, children from single-parent families whose mothers worked during their first year of life have greater later behavioral problems than children from intact families.

Null hypothesis: There are no differences between the two groups' means, that is, children from single-parent families and those from intact families have the same likelihood to exhibit later behavioral problems.

Table 39. Two group t-test: Family type differences in the frequency of children's later behavioral problems.

```
Two-sample t test with equal variances
---------------------------------------------------------------------------
   Group    |  Obs       Mean    Std. Err.   Std. Dev.   [95% Conf. Interval]
------------+--------------------------------------------------------------
single parent|  24   19.41667[19]  2.075492    10.1678    15.12318   23.71015
two-parent   | 144   22.36806     .940062    11.28074    20.50984   24.22627
------------+--------------------------------------------------------------
Combined     | 168   21.94643    .8600891    11.14803    20.24838   23.64448
------------+--------------------------------------------------------------
    Diff     |        -2.951389   2.454636               -7.797719   1.894941
---------------------------------------------------------------------------
    diff = mean(single p) - mean(two-pare)                    t =  -1.2024
Ho: diff = 0                                      degrees of freedom =    166

    Ha: diff < 0                Ha: diff != 0                 Ha: diff > 0
 Pr(T < t) = 0.1155      Pr(|T| > |t|) = 0.2309          Pr(T > t) = 0.8845
```

t=-1.2024; Critical value $_{(166df, \alpha=.05)}$ = 1.96 → t<1.96 → there is no statistically significant difference between the means. Therefore, the t-test fails to reject the null hypothesis at the 95% level of confidence.

p=0.2309; p>.05 → the probability that the difference is due to chance, random sampling error is greater than .05. Therefore, t-test fails to reject the null hypothesis.

By looking at table 39 we can see that the mean of behavioral problems for those children from single-parent families = 19.41667 and the mean behavioral problems for those children from two-parent families = 22.36806. Since the t-test is telling us that the mean differences are not statistically

---

[19] Considering theoretical assumptions, children from single-parent families are more likely to have behavioral problems than those from two-parent families. As shown in table 38, the data contradict this assumption. However, the t-test illustrate that the mean differences are not statistically significant.

significant, we can infer that there are not differences in behavioral problems for both children from single and two parent families.

Conclusion: Considering the information provided in table 39, it can be expected in the population for children of single and two-parent families to have the same likelihood of exhibiting behavioral problems later in life.

Hypothesis 1.7. Older children are more likely to have behavioral problems that are younger children.

This hypothesis is tested by estimating the effects of children's age on their later behavioral problems.

Hypothesis: There are child's age differences in the frequency of children's behavioral problems. That is, older children have higher likelihoods of exhibiting behavioral problems than have younger children.

Null hypothesis: There are no differences between the five groups' means, that is, children of seven, eight, nine, ten, and 11 years of age have the same likelihood to exhibit later behavioral problems.

Table 40. Oneway analysis of variance: child age differences in the frequency of children's behavioral problems.

```
                |      Summary of Child behavior
Child's age     |      Mean    Std. Dev.         Freq.
----------------+------------------------------------------
            7   |  23.833333   10.735102            12
            8   |  23.911765   13.067117            34
            9   |     20.95    11.466674            40
           10   |  22.581395   10.893931            43
           11   |  20.428571    11.3935             42
----------------+------------------------------------------
        Total   |  22.023392   11.546302           171
```

```
                    Analysis of Variance
      Source            SS         df      MS              F      Prob > F
-------------------------------------------------------------------------------
-
Between groups      326.853641     4    81.7134103       0.61     0.6580
Within groups       22337.0528    166   134.560559
-------------------------------------------------------------------------------
-
      Total         22663.9064    170   133.317097
```

Bartlett's test for equal variances: chi2(4) =   1.4717   Prob>chi2 = 0.832

```
           Comparison of Child behavior by Child's age
                            (Scheffe)
Row Mean-|
Col Mean |       7           8           9          10
---------+---------------------------------------------------
       8 |    .078431
         |    1.000
         |
       9 |   -2.88333    -2.96176
         |    0.966       0.878
         |
      10 |   -1.25194    -1.33037     1.6314
         |    0.999       0.993       0.981
         |
      11 |   -3.40476    -3.48319    -.521429    -2.15282
         |    0.938       0.792       1.000       0.947
```

F-ratio = 0.61; Critical $F_{(4,\ 166\ df,\ \alpha=.05)}$ = 2.37; → F-ratio<Critical F; p-value = .6580, p-value>α (p>.05) → fail to reject the null hypothesis. This means that when we have a Critical F $_{(\alpha=.05)}$ = 2.37 and the null hypothesis in true, with

repeated sampling, it is expected that the F-ratio will equal or exceed 2.37 only 5% of the time.

At α=.05 ANOVA fails to reject the null hypothesis and, therefore, there are no statistically significant child age differences in the frequency of children's later behavioral problems. To see the mean differences between each pair of means and be able to tell which child age category tends to have the most/least frequency of behavioral problems, the Scheffe table (table 40) is considered. The *eight years old category mean* = 23.91 and the *seven years old category mean* = 23.83, so the eight years category mean – seven years category mean difference is .0784, not statistically different from zero (p=1.000). The *nine years old category mean* = 20.95 and *seven years old category mean* = 23.83, *nine years old category – seven years old category mean* is -2.8833, not statistically different from zero (p=.996). The *nine years old category mean* = 20.95 and the *eight years old category mean* = 23.91, so *nine years old category – eight years old category mean* difference is -2.96176, not statistically different from zero (p=.878). The *ten years old category mean* = 22.58 and the *seven years old category mean* = 23.83, so the ten *years old category* – seven *years old category mean* difference is -1.25, not statistically different from zero (p=.999). The *ten years old category mean* = 22.58 and the eight *years old category mean* = 23.91, so the ten *years old category* – eight *years old category mean* difference is -1.33037, not statistically different from zero (p=.993). The *ten years old category mean* = 22.58 and the nine *years old category mean* = 20.95, so the ten *years old category* – nine *years old category mean* difference is 1.6314, not statistically

different from zero (p=.981). The *11 years old category mean* = 20.43 and the seven *years old category mean* = 23.83, so the 11 *years old category* – seven *years old category mean* difference is -3.40476, not statistically different from zero (p=.938). The *11 years old category mean* = 20.43 and the eight *years old category mean* = 23.91, so the 11 *years old category* – eight *years old category mean* difference is -3.48319, not statistically different from zero (p=.792). The *11 years old category mean* = 20.43 and the nine *years old category mean* = 20.95, so the 11 *years old category* – nine *years old category mean* difference is -.521429, not statistically different from zero (p=1.000). The *11 years old category mean* = 20.43 and the ten *years old category mean* = 22.58, so the 11 *years old category* – nine *years old category mean* difference is -2.15282, not statistically different from zero (p=.947).

Children eight years old tend to have the largest frequency of behavioral problems (mean = 23.91), followed by those seven years of age. Children 11 years of age tend to have the least frequency of behavioral problems. However, the differences in the frequency of behavioral problems are not statistically significant. According to the Scheffe table (table 40), the 11 years old – eight years old group is more likely to have differences in the frequency of behavioral problems and the eight years old – seven years old and 11 years old – nine years old groups group is the least likely to have differences is the frequency of behavioral problems. However, these differences are not statistically significant. Consequently, the overall conclusion from the Scheffe table is that the ten pairs of groups have statistically similar means. Therefore, there are no differences

among the ten pairs' means (not considering the grand mean), that is, children of seven, eight, nine, ten, and 11 years old have the same likelihood of exhibiting behavioral problems later in life.

Conclusion: the hypothesis is rejected: children of seven, eight, nine, ten, and 11 years of age have the same likelihood to exhibit later behavioral problems.

Multivariate Analyses. Logistic Regression

In order to test maternal status differences in children's behavioral problems when controlling for the period of maternal employment, type of employment, child care type, family income, child's age, maternal educational level, and family type, the logistic regression analysis is conducted.

Does mothers' educational level mediate the effects of maternal employment status on children's behavioral problems?

Table 41. Variance in behavioral problems explained by employment status alone.

```
      Source |       SS       df       MS              Number of obs =     171
-------------+------------------------------           F(  1,   169) =    0.39
       Model | 51.6112768      1  51.6112768           Prob > F      =  0.5354
    Residual | 22612.2952    169  133.800563           R-squared     =  0.0023
-------------+------------------------------           Adj R-squared = -0.0036
       Total | 22663.9064    170  133.317097           Root MSE      =  11.567


    behavior |     Coef.   Std. Err.      t     P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     estatus | -1.098933   1.769407    -0.62   0.535    -4.59192    2.394055
       _cons |  23.66215   2.782915     8.50   0.000    18.1684    29.1559
-----------------------------------------------------------------------------
```

a = y-intercept; the point where the regression line crosses the y-axis when x = 0; the predicted value of the dependent variable when the independent variable = 0; a = 23.66.

b = the slope of the regression line; the regression coefficient; the effect on y (behavioral problems) of a one unit change in x (employment status); b = -1.09.

R-square = 0.0023→ 0.23% of the variance in behavioral problems is explained by maternal employment status.

F = 0.39; p = 0.5354; p>.05 → there is no relationship between behavioral problems and employment status.

b = -1.09; t = -0.62; p = .535; p>.05 → the effect of employment status on children's behavioral problems is not statistically significant. The t-test is telling us that the slope equals zero, therefore, there are no employment status differences in children's behavioral problems.

Regression line formula: behavior = 23.06 - .43 (estatus) → the slope of the regression line (b = -1.09) is shown in Figure 9.

Figure 9: Effects of employment status on behavior

N=171

Mother's employment status during the child's first year of life

● Child behavior ———— Fitted values
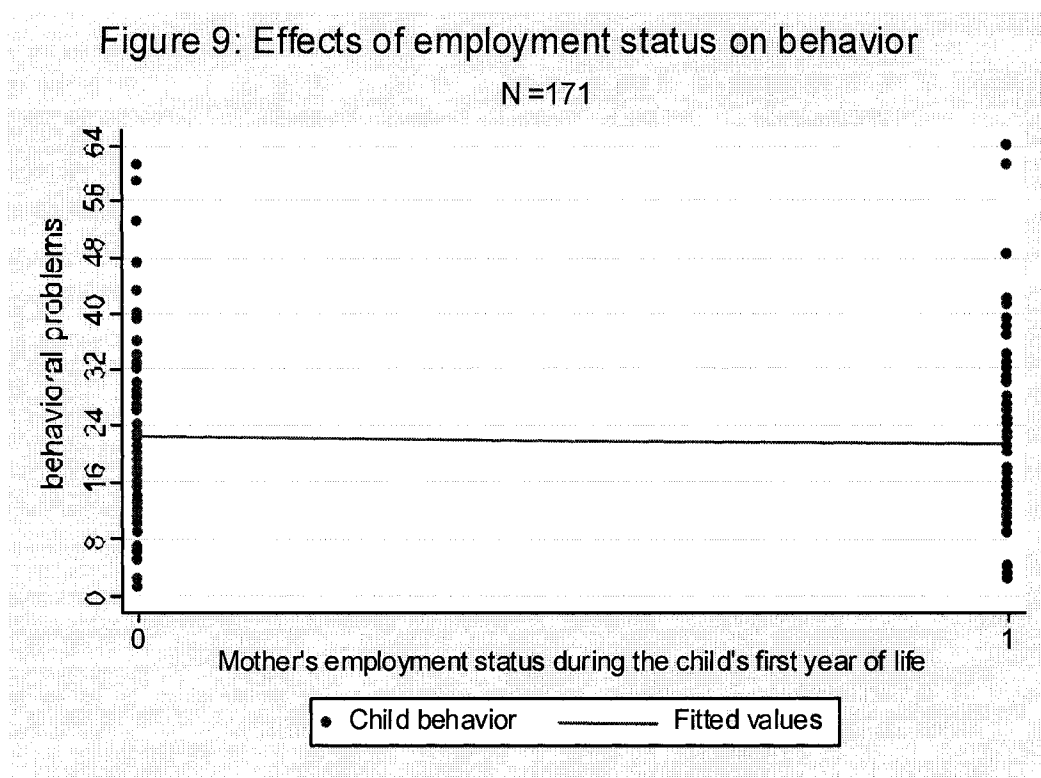
Table 42. Employment differences in children's behavioral problems when controlling for mothers' educational level[20].

```
      Source |       SS       df       MS              Number of obs =      170
-------------+------------------------------           F(  2,    167) =     0.30
       Model | 81.0671941        2   40.533597         Prob > F       =   0.7410
    Residual | 22546.3446      167  135.008051         R-squared      =   0.0036
-------------+------------------------------           Adj R-squared  =  -0.0084
       Total | 22627.4118      169   133.89001         Root MSE       =   11.619


------------------------------------------------------------------------------
    behavior |      Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     estatus |  -.9559084   1.789115    -0.53   0.594    -4.488106    2.576289
     edlevel |  -.7974036   1.549982    -0.51   0.608    -3.857489    2.262682
       _cons |   24.92146   3.803757     6.55   0.000     17.41181    32.43111
------------------------------------------------------------------------------
```

a (y-intercept) = 24.92

---

[20] Variance in behavioral problems explained by employment status alone is illustrated in Table 40.

R-squared = 0.0036→ 0.36% of the variance in children's behavioral problems is explained by both maternal employment status and maternal educational level (0.23% of the variance is explained by maternal employment status, therefore, 0.13% of the variance is explained by mothers' educational level).

F = 0.30; p = 0.7410, p>.05 → there is no relationship between employment status, mothers' educational level, and children's behavioral problems.

Regression line formula: $y = a + b_1x_1 + b_2x_2$; behavior = 24.92 − 0.96 (estatus) - .8 (edlevel)

$b_{estatus}$ = -0.95; t = -0.53; p = 0.6, p>0.05 → the effect of maternal employment status on children's behavioral problems is not statistically significant after controlling for mothers' educational level.

$b_{edlevel}$ = -.8; t = -0.51; p = 0.608, p>0.05 → the effect of the mothers' educational level on children's behavioral problems is not statistically significant.

Does mothers' marital status mediate the effects of maternal employment status on children's behavioral problems?

Table 43. Employment differences in children's behavioral problems when controlling for mothers' marital status.

```
      Source |       SS       df       MS                Number of obs =      168
-------------+------------------------------            F(  2,    165) =     0.76
       Model | 188.437152        2  94.2185761           Prob > F       =   0.4712
    Residual | 20566.0807      165  124.642913           R-squared      =   0.0091
-------------+------------------------------            Adj R-squared  =  -0.0029
       Total | 20754.5179      167  124.27855            Root MSE       =   11.164


------------------------------------------------------------------------------
    behavior |      Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     estatus |  -.4701195   1.726126    -0.27    0.786    -3.878262    2.938023
     mstatus |   2.990566   2.465709     1.21    0.227    -1.877843    7.858974
       _cons |   20.08267   3.342629     6.01    0.000     13.48283    26.68251
------------------------------------------------------------------------------
```

a (y-intercept) = 20.08

R-squared = 0.0091→ 0.91% of the variance in children's behavioral problems is explained by both maternal employment status and mothers' marital status (0.23% of the variance is explained by maternal employment status, therefore, 0.68% of the variance is explained by mothers' marital status).

F = 0.76; p = 0.4712, p>.05 → there is no relationship between maternal employment status, mothers' marital status, and children's behavioral problems.

Regression line formula: $y = a + b_1x_1 + b_2x_2$; behavior = 20.08 − 0.47 (estatus) + 2.99 (mstatus)

b $_{estatus}$ = -0.47; t = -0.27; p = 0.786, p>0.05 → the effect of maternal employment status on children's behavioral problems is not statistically significant after controlling for mothers' marital status.

b $_{mstatus}$ = 2.99; t = 1.21; p = 0.227, p>0.05 → the effect of mothers' marital status on children's behavioral problems is not statistically significant.

Does family income mediate the effects of maternal employment status on children's behavioral problems?

Table 44. Employment differences in children's behavioral problems when controlling for mothers' family income.

```
    Source |       SS       df       MS              Number of obs =      160
-----------+------------------------------          F(  2,    157) =     1.12
     Model |  274.504679      2  137.252339          Prob > F       =   0.3298
  Residual |  19290.2391    157  122.867765          R-squared      =   0.0140
-----------+------------------------------          Adj R-squared  =   0.0015
     Total |  19564.7437    159  123.048703          Root MSE       =   11.085


  behavior |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-----------+----------------------------------------------------------------
   estatus |  -1.339115   1.754141   -0.76   0.446    -4.803876    2.125645
 famincome |   1.866332   1.437244    1.30   0.196     -.972497     4.70516
     _cons |   20.83203   3.571557    5.83   0.000     13.77752    27.88653
```

a (y-intercept) = 20.83

R-squared = 0.0140→ 1.4% of the variance in children's behavioral problems is explained by both maternal employment status and mothers' family income (0.23% of the variance is explained by maternal employment status, therefore, 1.17% of the variance is explained by mothers' family income).

F = 1.12; p = 0.3298, p>.05 → there is no relationship between maternal employment status, mothers' family income, and children's behavioral problems.

Regression line formula: $y = a + b_1x_1 + b_2x_2$; behavior = 20.83 − 1.33 (estatus) + 1.86 (famincome)

$b_{estatus}$ = -1.33; t = -0.76; p = 0.446, p>.05 → the effect of maternal employment status on children's behavioral problems is not statistically significant after controlling for mothers' family income.

b $_{famincome}$ = 1.87; t = 1.30; p = 0.196, p>.05 → the effect of mothers' family income on children's behavioral problems is not statistically significant.

Does children's age mediate the effects of maternal employment status on children's behavioral problems?

Table 45. Employment differences in children's behavioral problems when controlling for children's age.

```
   Source |       SS       df       MS              Number of obs =      171
----------+----------------------------------       F(  2,    168) =     1.07
    Model | 284.670934      2  142.335467           Prob > F       =   0.3458
 Residual | 22379.2355    168  133.209735           R-squared      =   0.0126
----------+----------------------------------       Adj R-squared  =   0.0008
    Total | 22663.9064    170  133.317097           Root MSE       =   11.542


-----------------------------------------------------------------------------
 behavior |     Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
----------+------------------------------------------------------------------
  estatus | -1.613211   1.807802    -0.89   0.373    -5.182146    1.955724
    chage | -.9599868    .7257712   -1.32   0.188    -2.392793    .4728198
    _cons |   33.4563   7.908124     4.23   0.000     17.8442    49.0684
-----------------------------------------------------------------------------
```

a (y-intercept) = 33.46

R-squared = 0.0126→ 1.26% of the variance in children's behavioral problems is explained by both maternal employment status and children's age (0.23% of the variance is explained by maternal employment status, therefore, 1.03% of the variance is explained by children's age).

F = 1.07; p = 0.3458, p>.05 → there is no relationship between maternal employment status, children's age, and children's behavioral problems.

Regression line formula: y = a + b₁x₁ + b₂x₂; behavior = 33.46 – -1.61 (estatus) – 0.96 (chage)

$b_{estatus}$ = -1.61; t = -0.89; p = 0.373, p>.05 → the effect of maternal employment status on children's behavioral problems is not statistically significant after controlling for children's age.

b_{chage} = -0.96; t = -1.32; p = 0.188, p>.05 → the effect of children's age on children's behavioral problems is not statistically significant.

Do child care arrangements mediate the effects of maternal employment status on children's behavioral problems?

Table 46. Employment differences in children's behavioral problems when controlling for child care arrangements.

```
    Source |       SS       df       MS              Number of obs =      165
-----------+------------------------------           F(  2,    162) =     0.07
     Model |  17.9660228     2   8.9830114           Prob > F       =   0.9352
  Residual |  21715.2097   162  134.044505           R-squared      =   0.0008
-----------+------------------------------           Adj R-squared  =  -0.0115
     Total |  21733.1758   164  132.519364           Root MSE       =   11.578


------------------------------------------------------------------------------
  behavior |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-----------+------------------------------------------------------------------
   estatus |  -.5380818   1.807445    -0.30   0.766    -4.107272    3.031108
    chcare |  -.4343824   1.869803    -0.23   0.817    -4.126713    3.257948
     _cons |   23.68441   3.655552     6.48   0.000     16.46574    30.90309
------------------------------------------------------------------------------
```

a (y-intercept) = 23.68

R-squared = 0.0008→ 0.08 of the variance in children's behavioral problems is explained by both maternal employment status and child care arrangements.

F = 0.07; p = 0.9352, p>.05 → there is no relationship between maternal employment status, child care arrangements, and children's behavioral problems.

Regression line formula: y = a + b_1x_1 + b_2x_2; behavior = 23.68 − -0.53 (estatus) − 0.43 (chcare)

$b_{estatus}$ = -0.53; t = -0.30; p = 0.766, p>.05 → the effect of maternal employment status on children's behavioral problems is not statistically significant after controlling for child care arrangements.

b_{chcare} = -0.43; t = -0.23; p = 0.817, p>.05 → the effect of child care arrangements on children's behavioral problems is not statistically significant.

Does number of hours worked mediate the effects of maternal employment status on children's behavioral problems?

Table 47. Employment differences in children's behavioral problems when controlling for number of hours worked.

```
      Source |       SS       df       MS              Number of obs =       75
-------------+------------------------------           F(  1,    73) =     0.21
       Model | 29.6128042      1  29.6128042           Prob > F      =   0.6466
    Residual | 10201.2672     73 139.743386            R-squared     =   0.0029
-------------+------------------------------           Adj R-squared =  -0.0108
       Total |   10230.88     74 138.255135            Root MSE      =   11.821


    behavior |      Coef.   Std. Err.       t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
     estatus |  (dropped)
     workhrs |  -1.399471   3.040113    -0.46   0.647    -7.458408    4.659466
       _cons |   23.35185   1.608677    14.52   0.000     20.14576    26.55794
```

a (y-intercept) = 23.35

R-squared = 0.0029→ 0.29% of the variance in children's behavioral problems is explained by both maternal employment status and number of hours worked (0.23% of the variance is explained by maternal employment status, therefore, 0.06% of the variance is explained by the number of hours worked).

F = 0.21; p = 0.6466, p>.05 → there is no relationship between maternal employment status, number of hours worked, and children's behavioral problems.

Does employment period mediate the effects of maternal employment status on children's behavioral problems?

Table 48. Employment differences in children's behavioral problems when controlling for employment period.

```
    Source |       SS       df       MS              Number of obs =      53
-----------+------------------------------           F( 1,     51) =    0.14
     Model |  16.3362007     1   16.3362007          Prob > F       =  0.7101
  Residual |  5964.64493    51   116.953822          R-squared      =  0.0027
-----------+------------------------------           Adj R-squared  = -0.0168
     Total |  5980.98113    52   115.018868          Root MSE       =  10.815


  behavior |     Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-----------+----------------------------------------------------------------
   estatus |  (dropped)
   eperiod |   .4780887   1.279205     0.37   0.710    -2.090023     3.0462
     _cons |   20.46568   4.318378     4.74   0.000     11.79617    29.13519
```

a (y-intercept) = 20.47

R-squared = 0.0027→ 0.27% of the variance in children's behavioral problems is explained by both maternal employment status and employment period (0.23% of the variance is explained by maternal employment status, therefore, 0.04% of the variance is explained by the number of hours worked).

F = 0.14; p = 0.7101, p>.05 → there is no relationship between maternal employment status, employment period, and children's behavioral problems.

Conclusion. The regression analysis conducted illustrates that there is no statistically significant relationship between maternal employment and children's behavioral problems. Therefore, there are no differences in children's behavioral problems, that is, children whose mothers were employment and those whose mothers were unemployed during their first year of life have the same likelihood of exhibiting behavioral problems during their school-age years. Additionally, the

effect of maternal employment status on children's behavioral problems is not statistically significant after controlling for maternal age, maternal educational level, mothers' marital status, family income, children's age, type of employment (number of hours worked), and period of maternal employment. Therefore, it can be inferred that these variables do not mediate the relationship between maternal employment and children's behavioral problems.

Discussion

The results presented in this chapter provide no statistical support for the study's hypotheses. For a brief summary of the findings regarding hypotheses tests, please refer to table 49. Based on the results presented in the above sections, the main hypothesis in not supported. Moreover, the following hypotheses are not supported: 1.1, 1.2, 1.3., 1.4, 1.5, 1.6, 1.7, and 1.8. Therefore, there are no employment status differences in the frequency of children's behavioral problems. That is, children whose mothers were employed and those whose mothers were unemployed during their first year of life have the same likelihood of exhibiting behavioral problems later in life. (H_1). Maternal educational level does not mediate the effects of maternal employment status on children's behavioral problems. ($H_{1.1}$). Mothers marital status does not mediate the effects of maternal employment status on children's behavioral problems. ($H_{1.2}$) Family income does not mediate the effects of maternal employment status on children's behavioral problems. ($H_{1.3}$). Child's age does not mediate the effects of maternal employment status on children's behavioral problems. ($H_{1.4}$). Child care type does not mediate the effects of maternal employment status on

children's behavioral problems ($H_{1.5}$). Employment type does not mediate the effects of maternal employment status on children's behavioral problems ($H_{1.6}$). Employment period does not mediate the effects of maternal employment status on children's behavioral problems ($H_{1.7}$).

Table 49. Summary of results from hypotheses tests.

Hypotheses	Support	Findings to support hypotheses
H_1: Employed mothers → children's behavior problems	No support	Early maternal employment is not related to children's later behavioral problems.
$H_{1.1}$: Does maternal educational level mediate the effects of maternal employment status on children's behavioral problems?	No support	Maternal educational level does not mediate the effects of maternal employment status on children's behavioral problems.
$H_{1.2}$: Does mothers marital status mediate the effects of maternal employment status on children's behavioral problems?	No support	Mothers marital status does not mediate the effects of maternal employment status on children's behavioral problems.
$H_{1.3}$: Does family income mediate the effects of maternal employment status on children's behavioral problems?	No support	Family income does not mediate the effects of maternal employment status on children's behavioral problems.
$H_{1.4}$: Does child's age mediate the effects of maternal employment status on children's behavioral problems?	No support	Child's age does not mediate the effects of maternal employment status on children's behavioral problems.
$H_{1.5}$: Does child care type mediate the effects of maternal employment status on children's behavioral problems?	No support	Child care type does not mediate the effects of maternal employment status on children's behavioral problems.
$H_{1.6}$: Does employment type mediate the effects of maternal employment status on children's behavioral problems?	No support	Employment type does not mediate the effects of maternal employment status on children's behavioral problems.
$H_{1.7}$: Does employment period mediate the effects of maternal employment status on children's behavioral problems?	No support	Employment period does not mediate the effects of maternal employment status on children's behavioral problems.

According to the study's data, early maternal employment is not related to children's later behavioral problems. Possible alternative explanations for this finding are as follows. First, mothers who are absent during their children's first years of life are still capable to develop secure attachments with their mothers. Second, maternal employment during the child's first year of life does not constitute an extended mother-child separation which is theoretically associated with children's insecure attachment to the mother which is assumed to be detrimental to children's development. Third, theorists believe that maternal employment status is a factor affecting the amount of time mothers have to spend with their children (not directly tested by the present study), and, consequently, they associate lower levels of maternal engagement with their children's with higher levels of later negative behavior outcomes. The study's findings suggest that the amount of time the mother spends with her child is not related to the child's later behavioral problems. Whether the mother is employed or unemployed, whether the mother is employed part-time or full-time during her child's first year of life, children have the same likelihood of exhibiting behavioral problems later in life. It can be inferred that not the quantity but the quality of time the mothers spend with their children matters.

Fourth, a possible alternative explanation for the fact that no statistically significant relationship between early maternal employment and children's later behavioral problems has been found on a Romanian population can be related to the country's generous maternity leave policy. Therefore, in regard to policy implications, it can be inferred that the Romania's generous maternity leave

policy has beneficial effects on children's behavioral problems, therefore, the effects found by studies conducted on American populations are not found in Romania populations. Finally, descriptive statistics indicate that of those mothers who worked during the first year of the child's life the majority (55.38 percent) entered the labor market during the first 12 months of the child's life. Consequently, it can be deducted that children's behavioral problems are alleviated by mothers' employment during their first 12 months of life (inference based on the assumption that the effects of maternal employment are larger when employment occurs earlier in the child's first year of life (Han et al., 2001). Therefore, the period of maternal employment during the child's first year of life could also be related to Romania's generous maternity leave provisions. Offering generous provisions in regard to income replacement, job protection, length, and flexibility the Romania' maternity leave policy makes possible for the mothers to return to work after giving birth later in the child's life.

The strengths and limitations of the findings, as well as suggestions for future research, are provided in the following chapter.

CHAPTER 4. CONCLUSIONS

Understanding how maternal employment during the first year of the child's life is related to children's later behavioral problems is an important step in assessing the sociological and family-level influences on children's well-being. This is particularly important in Romania where a great emphasis is put on the importance of maternal presence during the child's first year of life and where the mentality that mothers belong in the home to bear, rear, and care for their children is still found among Romanian people. Because no attempts have been made to examine the relationship between early maternal employment among Romanian mothers and their children's later behavioral problems, this thesis makes an important contribution to current knowledge about the effects of mothers' employment on children's later behavioral problems. The thesis's findings are inconsistent with a large body of research results conducted on American populations which illustrate significant detrimental effects for maternal employment in the child's first year of life on children's later behavioral problems. Additionally, the present study offers insight into the cross-cultural relationship between maternal employment and children's behavioral problems, by bringing information about a Romanian population and building, this way, on the existent knowledge in regard to populations having national origins other than American.

Using data from a Romanian population living in the Southwestern Romania (Oltenia region, Gorj county, Tg-Jiu city), the present study examines how mothers' employment status during the child's first year of life is correlated

with school-age children's (ages 7-11) behavioral problems. Furthermore, the importance of the type of child care in which the child was enrolled during the first year of life, maternal educational level, the family structure, the family income, the gender of the child, the number of hours the mother worked during the child's first year of life, and the period of maternal employment was explored in the context of the impact of early maternal employment on children's later behavioral problems. Specifically, differences in children's behavioral problems per period of employment, type of employment, child care type, family income, child's gender, maternal educational level, and family type were tested. The findings illustrate that early maternal employment is not related to children's later behavioral problems.

Limitations and Strengths

The findings presented should be considered with caution due to the limitations of this study. First, although the present study considers key variables in testing the relationship between early maternal employment and children's later behavior problems, this is not a complete set of hypotheses that could be tested and therefore, the study does not cover the large set of prospective variables. For instance, no data are available regarding the quality of child care arrangements in which the child was placed during his/her first year of life. However, the present study considers the type of child care which is believed to be correlated with the quality of child care (Han et al., 2001). Moreover, the home environment, the quality of time that the mother spends with the child, and maternal stress may play important roles in understanding the relationship

between the two variables. Second, given the relatively small size of the study's sample, the results' statistical power is somewhat limited. This fact might have led the researcher to underestimate the real effects of early maternal employment on children's later behavioral problems (Cheng & Powell, 2005) and therefore, could have hindered the researcher to detect a true association between the variables (Wampler et al., 2005). Therefore, given the small sample size there is the possibility that the researcher makes the logical error of inferring that the results are due to chance when in reality there is a causal relationship between the variables (Type II error – falsely accepting the null hypothesis). Analyses of a larger sample should be conducted.

Third, due to the sample's characteristics, the study's results could only be generalized to the Romanian population living in Tg-Jiu city, Romania. The results cannot be generalized to the Gorj county since this geographical location has a great variety in regard to the mothers' family income, mothers educational levels, and mothers employment status. Mothers living in the rural parts of the Gorj county have lower family incomes, lower educational levels, and lower level of labor force participation. Finally, the relationship between early maternal employment and children's later behavioral problems is assessed based on mothers' reports. Since behavioral problems could be a sensitive topic for the mothers to report, the data collected may not be entirely accurate. For a more comprehensive assessment and a better understanding of the relationship between the study's variables, parents, teachers, and children's self-reports should be considered.

Despite these limitations, however, by assessing the correlation between maternal employment in the child's first year of life and the child's later behavior problems in Romanian children, the present thesis has a unique contribution in building on the existent social knowledge by filling an important gap in the literature. It is often stated that high rates of attrition and the problem of achieving research access (Turner et al., 2004) to foreign populations are obstacles in gaining information about these populations. Since methodological problems like low rates of response and high rates of attrition were not encountered in the process of data collection (Turner et al.), the thesis brings valuable information about Romanian children's behavioral development. Second, given the fact that the children's behavior problems can be a sensitive issue for the mothers, by using the mail questionnaire type of survey research, the researcher increased the likelihood of getting honest responses and avoided interviewer bias and social desirability (Neuman, 2006).

Future Research

The thesis was designed to analyze the relationship between Romanian mothers' employment status during the child's first year of life and the child's later behavior problems. Although a statistically significant relationship between variables was not found, the study could inspire future research in analyzing differences in children's later behavioral problems across different racial and ethnic groups. Moreover, future research could be conducted to establish whether the results found are consistent with different levels of quality of child care arrangements in which the children were enrolled during their first year. The

thesis does not consider the quality of time the mother spends with her child. Future research would bring valuable contributions to understanding the effects of the number of hours worked and quality of the mother's time, which it is illustrated to depend on the hours of work (James-Burdumy, 2005; Hofferth, 2005).

Including measures of maternal stress or measures of home environment might also be valuable avenues to encounter in future work in an attempt to measure the quality of the mother's time more accurately. Studying the effects of maternal employment on children's behavioral development using time-use information would be valuable to determine exactly how maternal employment affects the amount of time the mother spends with the child (James-Burdumy, 2005). Consequently, by providing answers to the following questions, future research would have an important contribution to understanding the effects of early maternal employment on children's behavioral problems: Are employed mothers spending less time with their children, or are they able to spend the same amount of time with their children by sacrificing leisure time or housework time? Are fathers compensating for the employment of the mother by increasing the amount of time that they spend with their children or by increasing the amount of time spent on housework? If the answers to these questions are positive, how do these time-use changes affect child development? (James-Burdumy, 2005).

Having a cross-sectional design, the present research study analyzes children's behavior problems at only one point in time. Longitudinal studies could

examine whether the effects of early maternal employment on children's later behavior problems found at a point in time (when children were seven, eight, nine, ten, and 11 years old) will change (exacerbate) overtime, as children will get older. By observing children's behavior in their natural environments, a qualitative field research study could bring valuable detailed data about their behavioral problems (Neuman, 2006; Tubbs & Burton, 2006). Combining a large body of research studies analyzing the relationship between maternal employment during the child's first year of life and children's later behavior problems and having the individual study as the unit of analysis (Wampler et al., 2005), meta-analysis could be helpful to policymakers interested in the topic. Instead of reading numerous separate studies, they could read one easily understandable study (Wampler et al.).

Although the Romanian women labor force participation has increased (National Institute of Statistics, 2007b; Romanian Department of Labor, Social Solidarity, and Family, 2007a), the rate is slower for Romanian women than for American women. Furthermore, the part-time employment rate for Romanian women has decreased in the last six years from 11.2 percent to 9.2 percent (Romanian Department of Labor, Social Solidarity, and Family, 2007a), meaning that today more women participate in the labor market as full-time employees. Given the fact that women with infants have had the fastest growth rate in the labor force participation of any other group (Committee on Ways and Means, 1998, as cited in Han et al., 2001) and that there has been an increasing concern about the adverse impact early maternal employment may have on children's

development outcomes, the study's results have valuable importance for policymakers formulating legislation on maternity leave policies. Additionally, employed mothers interested in the impact early maternal employment has on their children's later behavioral problems, deciding whether they will return to work soon after the birth of a child, could also benefit from the study's results.

APPENDICES

APPENDIX A: Attachment Theory

As stated earlier, Attachment theory was developed from the joint work of John Bowlby and Mary Ainsworth (Ainsworth & Bowlby, 1991, as cited in Bretherton, 1992). Mary Ainsworth's methodology offered the possibility of empirically testing Bowlby's theoretical ideas (Bretherton, 1992) and helped expanding the theory itself and its applications. Ainsworth contributed to the development of the attachment concept by defining it as being a "secure base from which an infant can explore the world" (Bretherton, 1992, p. 759). The underlying meaning of this definition is that positive attachments create a secure base from which individuals can operate and adaptively respond to their environment's stimuli. As described by Holmes, attachment theory is essentially a *spatial* theory guided by the following tenet: "when I am close to my loved one I feel good, when I am far away I am anxious, sad, or lonely" (1993, p. 67). The theory is concerned with the "establishment of close social ties, regulation of affect within those ties, and the organization of cognitions with reference to relationships and affects" (Hill, Fonagy, Safier, & Sargent, 2003, p. 207) and assumes that seeking and maintaining contact with others is a primary motivating principle in human beings. Dependency is an innate part of being human, rather than a childhood trait that people grow out of as they mature. Such contact constitutes an innate survival mechanism (Cassidy, 1999).

The basic, interrelated concepts of the theory are attachment, attachment behavior, and the attachment behavioral system. These three concepts represent the psychodynamic, the behavioral, and the cognitive components of attachment

theory (Holmes, 1993). *Attachment*, having both empirical and theoretical meanings, refers to the state and quality of a person's attachment toward his/her attachment figure (Holmes, 1993). Bowlby used this term to describe the affective bond that develops between an infant and the primary caregiver (Egeland & Erickson, 1999) – the attachment figure (usually the mother). Attachment can be seen as a continuous process, as a pattern of interaction that develops over time as the child and the caregiver interact. Bowlby described the infant as "biologically predisposed to use the caregiver as a haven of safety or a secure base [the ambiance created by the attachment figure for the attached individual] while exploring the environment; when the infant feels threatened he/she will turn to the caregiver for protection and comfort" (Egeland & Erickson, 1999, ¶ 18). The caregiver's response to the child's needs transforms the attachment relationship into a pattern of interaction that develops over the first year of the child's life (Egeland & Erickson, 1999). An individual's attachment consists of "internalized representations of relationships and complex but changing patterns of behavior that connect young children to their caretakers (dyadic level)" (Peterson, 1995, p. 28).

At the core of the attachment theory is the assumption that a sensitive, responsive caregiver (usually but not always the mother) is of fundamental importance to the development of a secure/insecure attachment bond during the child's first years of life (Belsky, 1999). A child can develop secure and insecure attachments (Holmes, 1993) in relation to the caretaking person. The building blocks of secure bonds are emotional accessibility and responsiveness.

Therefore, the feeling of secure attachment, which will "foreshadow [the child's] later psychological growth" (Thompson, 1999, p. 265), is accompanied by the feelings of safety and security toward the attachment figure. By contrast, an insecurely attached individual may encounter a mixture of feelings such as fear of rejection, intense love and dependency, irritability, and vigilance (Holmes, 1993).

From this point of view, a secure attachment in infancy sets the stage and constitutes the premise for subsequent psychological achievements if "the sensitive, supportive care initially contributing to attachment security is maintained (conversely, insensitive parenting contributes to insecure attachment, and to less optimal later functioning if it also endures over time)" (Thompson, 1999, p. 271). Consequently, one can infer that "[c]ertainty about the availability of an attachment figure . . . is important for healthy functioning across the life span" (Bowlby, 1979, as cited in Cassidy & Berlin, 1994, p. 980).

The *attachment behavior* concept, having its roots in evolutionary biology, is defined as "[a]ny form of behavior that results in a person attaining or retaining proximity to some other differentiated and preferred individual" (Holmes, 1993, p. 68). As stated by Cassidy, attachment behavior has "the predictable outcome of increasing proximity of the child to the attachment figure (usually the mother)" (Cassidy, 1999, p. 4). It is believed that many predictable outcomes that are beneficial to the child result from the child's proximity to the mother (Bowlby, 1969/1982, as cited in Cassidy, 1999). When the security of a bond is threatened, attachment behaviors are activated. Attachment behaviors are

initiated by separation or threatened separation from the attachment figure and it is terminated or relieved by proximity, which, depending on the nature of the threat, may have a large scale of manifestations: being in sight, being physically close, receiving soothing words from the attachment, preferred figure but not physical touch, and being cuddled and tightly held, etc. (Holmes, 1993). If these behaviors fail to evoke responsiveness from the attachment figure, a prototypical process of angry protest, clinging, despair, and detachment occurs (Holmes, 1993). The elementary form of connectedness between the attached person and the attachment figure is most obvious when the attached person is frightened, ill, or fatigued; therefore, these attachment behaviors are diminished when the attachment figure provides protection, soothing, and help (Peterson, 1995).

The *attachment behavioral system* concept, borrowed from ethology to "describe a species-specific system of behaviors that leads to certain predictable outcomes" (Cassidy, 1999, p. 5), is comprised of both attachment and attachment behavior concepts and is defined as the model in which "the self and significant others and their interrelationship are represented and which encodes the particular pattern of attachment shown by an individual" (Holmes, 1993, p. 68). The behavior system concept involves inherent motivation (Cassidy, 1999). As Cassidy argues, there is "no need to view attachment as the by-product of any more fundamental processes or 'drive' . . . [C]hildren are thought to become attached whether their parents are meeting their psychological needs or not" (1999, p. 5). This idea is supported by evidence indicating that, unlike what secondary-drive theories assume (e.g., Freud, 1910/1957; Sears et al., 1957, as

cited in Cassidy, 1999), attachment is not a result of associations with feeding (Ainsworth, 1967, Harlow, 1962, Schaffer & Emerson, 1964, a cited in Cassidy, 1999). Additionally, research studies' results that infants become attached even to abusive mothers (Bowlby, 1956, as cited in Cassidy, 1999) indicate that "the system is not driven by simple pleasurable associations" (Cassidy, 1999, p. 5).

A major emphasis of a large set of research studies has been on understanding why and how some children from diverse socio-economic backgrounds and family types develop in a competent fashion while others develop social, emotional, or behavior problems (Egeland & Erickson, 1999). The answer to this question, consistent with the results of a large number of research studies is that love, nurturance, and emotionally responsive care from the primary caregiver are essential for children's normal and healthy development (Egeland & Erickson, 1999). Although the importance of love and nurturance may seem obvious, attachment theory and research have led to a more profound understanding of the early attachment relationship, of how this relationship supports and encourages the child's early psychological, emotional, and cognitive development, and how specific "defining characteristics of a particular relationship are incorporated into the child's sense of self and carried forward into subsequent relationships" (Sroufe, 1999, as cited in Egeland & Erickson, 1999, ¶ 17). For instance, Bowlby argued that children experience intense distress when separated from their mothers (Cassidy, 1999) and that maternal deprivation, and therefore, the lack of love and nurturance, produces physical, cognitive, emotional, and behavioral damage. Moreover, as Bowlby claimed, even brief

interruptions in the attachment relationship and separations from the mother during the child's first years of life can have long-lasting detrimental effects (Holmes, 1993) on the child's later overall development. Therefore, attachment research is guided by the general expectation that a secure attachment in infancy predicts positive developmental outcomes in the child's later years of life (Thompson, 1999).

Sroufe described the mother-child attachment relationship in terms of "the dyadic regulation of the infant's emotions and arousal" (1996, as cited in Egeland & Erickson, 1999, ¶ 19). Due to the fact that infants are not capable of regulating their own emotions, they require the assistance of a primary caregiver in stabilizing their fluctuating emotions (Egeland & Erickson, 1999). By responding to the infant's signals (e.g., crying – a way of expressing distress), the mother is capable of keeping the distress and arousal within reasonable limits. This represents the beginning stages of coordination in the regulation process (Egeland & Erickson, 1999) and the premises of the attachment relationship. Therefore, during the infant's first few months of life the caregiver is primarily responsible for regulating the infant's emotions. To be able to complete this task, the caregiver is required to be sensitive to the infant's signals and, at the same time, be capable of interpreting the meaning of the child's behavior and be ready to respond in an appropriate manner (Egeland & Erickson, 1999). This means that an attachment relationship requires both a sensitive and responsive attachment figure.

A series of research studies guided by the attachment theory illustrate that the early attachment relationship between the child and the mother (characterized by responsive care, sensitivity, and secure attachment) provides an important foundation for later development and it is, therefore, associated with children's positive developmental outcomes (Sroufe, 1983; Erickson, Sroufe & Egeland, 1985; Egeland & Kreutzer, 1991, as cited in Egeland & Erickson, 1999). On the other hand, children with anxious attachment histories and disorganized patterns of attachment in infancy are more likely to have behavioral and emotional problems later in life (Warren, Huston, Egeland, & Sroufe, 1997; Egeland et al., in press; Carlson, 1998, as cited in Egeland & Erickson, 1999). Egeland and Erickson's research studies indicate that "efforts aimed at promoting a secure attachment may prevent various forms of problems among children in high-risk circumstances" (1999, ¶ 26). Furthermore, Egeland et al. argue that, in addition to influencing social, emotional, and behavioral outcomes, attachment relationships may also be related to the child's brain development (in press, as cited in Egeland & Erickson, 1999). For instance, anxiously attached infants and children classified as disorganized have significantly higher levels of cortisol (a stress hormone), as measured in samples of saliva taken during the Strange Situation procedure (Hertsgaard, Gunnar, Erickson, & Nachmias, 1995, as cited in Egeland & Erickson, 1999). This is particularly relevant since neuroscientists hypothesize that high levels of cortisol may undermine the development of neural connections and, consequently, the capacity of the brain to regulate emotion (Egeland & Erickson, 1999).

Consequently, all of these research studies' results are consistent with Freud's famous dictum that the mother-infant relationship is "unique, without parallel, established unalterably for a whole lifetime as the first and strongest love-object and as the prototype of all later . . . relations" (Bretherton, 1985, p. 14) and with Bowlby's argument that "a warm and continuous relationship with a caregiver promotes psychological health and well being throughout life in a manner that accords with the adaptive requirements of the human species" (Thompson, 1999).

APPENDIX B: Informed Consent Form

Dear madam,

I am a University of New Hampshire student and I am conducting a research study to learn about the relationship between early maternal employment and children's later behavior problems. To participate in this study, I would like to ask you to fill out a short questionnaire about your employment status during your child's first year of life and his/her behavior. The results will help to inform policymakers formulating legislation on family leave policies. Also, the gathered information would be of great value for employed mothers deciding whether they will return to work after the birth of a child.

In appreciation for your participation in the study, upon receipt of your completed consent form and questionnaire, your name will be introduced into a lottery for a prize including books for elementary school children. Your participation is voluntary and will be kept confidential. If, at any time, you feel uncomfortable, you may choose not to answer a question(s) or may withdraw from the study at any time. There is no penalty for choosing to withdraw from the study. Your name will not be associated with your answers and will not be released in the process of revealing the study's results.

Your input is of great importance in understanding the relationship between early maternal employment and children's behavior problems.

If you have questions about this research study you may contact me at ——————

If you have questions about your rights as a participant in a research study, you may contact the University of New Hampshire's Institutional Review Board at ————

Thank you,

Diana Ruset

Informed Consent form

There are two copies of this letter in the package you received. Please sign one of them when you complete the survey and send it to the provided address and keep the other copy for your records.

Yes, I,_____ agree/consent to participate in this research study.

No, I, _____ do not agree/refuse to participate in this research study.

APPENDIX C: Informed Consent Form (Translation from English into Romanian Language)

Draga doamna,

Sunt student al Universitatii din New Hampshire, SUA si coordonatorul unui studiu de cercetare care are drept scop a colecta informatii si a intelege relatia dintre statutul pe piata fortei de munca a mamei in timpul primului an de viata al copilului si problemele de comportament ale copilului de scoala elementara. Pentru a participa in acest studiu, as dori ca dumneavoastra sa completati un scurt chestionar care cuprinde intrebari despre statutul pe piata fortei de munca al dumneavoastra in timpul primului an de viata al copilului si problemele de comportament pe care copilul le are in prezent. Rezultatele acestui studiu vor fi folositoare pentru persoanele implicate in formularea politicilor sociale, in special a concediului de maternitate. De asemenea, informatia culeasa v-a avea valoare pentru mamele angajate care incearca sa decida daca si cand sa se intoarca pe piata fortei de munca dupa nasterea unui copil.

Pentru a va arata gratitudinea pentru participarea dumneavostra in acest studiu, dupa primirea scrisorii de consimtamant (impreuna cu formularul de consimtamant) semnata si a questionarului completat, numele dumneavostra va fi introdus intr-o loterie avand ca premiu cateva carti pentru copii de scoala elementara. Participarea dumneavostra in acest sudiu este voluntara si confidentiala. Daca va simtit necomfortabil in timpul completarii chestionarului, puteti alege sa nu raspundeti la o anumita intrebare sau puteti sa va retrageti din

studio. Nimeni nu va fi penalizat pentru retragerea din studiu. Numele dumneavostra nu va fi asociat cu raspunsurile date la intrebarile din chestionar si nu va fi facut public in procesul de publicare a rezultatelor studiului.

Participarea dumneavostra in acest studiu este foarte importanta in intelegerea relatiei dintre statutul pe piata fortei de munca a mamei in timpul primului an de viata al copilului si problemele de comportament ale copilului de scoala elementara.

Orice intrebari despre acest studiu de cercetare pot fi adresate contactandu-ma la numarul de telefon (603) 969 0796 sau prin email la adresa de email caj8@unh.edu. De asemenea, intrebari pot fi adresate domnului Ion Floroiu prin email la ion.floroiu@yahoo.com, sau la numarul de telefon (0253) 225543.

Daca aveti intrebari despre drepturile dumneavostra de participant in acest studiu, puteti contacta Comisia pentru Aprobarea Studiilor de Cercetare din cadrul Universitatatii din New Hampshire, SUA, la numarul de telefon (603) 862 2003 sau prin email la Julie.simpson@unh.edu.

Va multumesc,
Diana Ruset

Formular de consimtamant

In pachetul pe care l-ati primit sunt doua copii ale acestei scrisori de consimtamant. Va rog sa semnati una dintre ele si sa o returnati invatatorului/invataroarei impreuna cu chestionarul completat. Va rog sa pastrati cealalta copie pentru dumneavoasta.

Da, eu, _____ sunt de acord/imi dau consimtamantul sa particip in acest studiu de cercetare.

Nu, eu _____ nu sunt de acord/nu imi dau consimtamantul sa particip in acest studiu de cercetare.

APPENDIX D: Child Behavior Rating Scale

SECTION 1. DEMOGRAPHICS. The following questions will enable me to have some demographic information about you and your child. Please answer the questions by circling one of the provided categories that apply to you.

1. What is your gender?

> (a) Female;
>
> (b) Male.

2. How old were you at the child's birth?

> (a) less than 20;
>
> (b) 21-25;
>
> (c) 26-30;
>
> (d) 31-35;
>
> (e) 36-40;
>
> (f) 41-45;
>
> (g) more than 45.

3. What was your educational level at the child's birth?

> (a) less than high school;
>
> (b) high school diploma;
>
> (c) college graduate;
>
> (d) higher education graduate.

4. Are you a single mother?

> (a) Yes;
>
> (b) No.

5. What is your actual monthly family income?

    (a) RON 780 per month or less;

    (b) RON 781 – 2,540 per month;

    (c) RON 2,541 per month or more.

6. What is your child's age? _____

7. What is your child's gender?

    (a) female;

    (b) male.

8. What was the primary child care arrangement in which your child was enrolled during his/her first year of life?

    (a) parental care (care by mother or father);

    (b) relative care (care by siblings, grandparents, or other relatives);

    (c) nonrelative care (care by someone other than a relative);

    (d) center care (day-care center).

9. Were you employed during your child's first year of life?

    (a) Yes;

    (b) No.

10. How many hours did you work per week during your child's first year of life?

    (a) less than 30 hours per week;

    (b) 30 hours or more per week.

11. During what period of your child's first year of life you entered the labor force market?

    (a) the first 3 months;

    (b) the first 6 months;

    (c) the first 9 months;

    (d) the first 12 months.

SECTION 2. CHILD BEHAVIOR RATING SCALE. On the next two pages you will see a set of statements that describe children's reactions to a number of situations. I would like you to tell me what your child's reaction is likely to be in those situations. Of course, there are no "correct" ways of reacting; children differ widely in their reactions, and it is these differences I am trying to learn about. Please read each statement and decide whether that situation applies to your child's behavior in the last 12 months. Please answer the statements by circling the number that corresponds to the category-behavior and to the likelihood that your child exhibits that behavior (Not al all = 0, Just a little = 1, Pretty much = 2, Very much = 3).

Behavior categories	Not at all	Just a little	Pretty much	Very much
1. Often interrupts or intrudes on others (e.g. butts into conversations/games)	0	1	2	3
2. Often argues with adults	0	1	2	3
3. Often talks too much	0	1	2	3
4. Often is easily distracted	0	1	2	3
5. Often fidgets with hands or feet or squirms in seat	0	1	2	3
6. Often is spiteful or mean	0	1	2	3
7. Often blames others for his/her mistakes or misbehavior	0	1	2	3
8. Often refuses to comply with adults' requests or rules	0	1	2	3
9. Often does not seem to listen when spoken to directly	0	1	2	3
10. Often blurts out answers before questions have been completed	0	1	2	3
11. Often has difficulty playing quietly	0	1	2	3
12. Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities	0	1	2	3

Behavior categories (table continued)	Not at all	Just a little	Pretty much	Very much
13. Often is angry and resentful	0	1	2	3
14. Often leaves seat in classroom or in other situations in which remaining seated is expected	0	1	2	3
15. Often is touchy or easily annoyed by others	0	1	2	3
16. Often does not follow through on instructions and fails to finish chores or schoolwork (not due to oppositional behavior or failure to understand directions)	0	1	2	3
17. Often loses temper	0	1	2	3
18. Often has difficulty continuously paying attention in tasks or play activities	0	1	2	3
19. Often has difficulty awaiting turn	0	1	2	3
20. Often is "on the go" or often acts as if "driven by a motor"	0	1	2	3
21. Often runs about or climbs too much when he or she shouldn't	0	1	2	3
22. Often avoids, dislikes, or is reluctant to engage in tasks that require continued mental effort (such as school or homework)	0	1	2	3
23. Often deliberately annoys people	0	1	2	3
24. Often has difficulty organizing tasks and activities	0	1	2	3
25. Often is forgetful in daily activities	0	1	2	3

Thank you for your help!!!

APPENDIX E: IRB Approval

University *of* New Hampshire

Research Conduct and Compliance Services, Office of Sponsored Research
Service Building, 51 College Road, Durham, NH 03824-3585
Fax: 603-862-3564

03-May-2007

Ruset, Codruta (Diana)
Family Studies, Pettee Hall
184 Forest Park
Durham, NH 03824

IRB #: 3966
Study: How is mothers' employment status during a child's first year of life correlated with school-age children's behavioral problems?
Approval Date: 01-May-2007

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Exempt as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 101(b). Approval is granted to conduct your study as described in your protocol.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, *Responsibilities of Directors of Research Studies Involving Human Subjects.* (This document is also available at http://www.unh.edu/osr/compliance/irb.html.) Please read this document carefully before commencing your work involving human subjects.

Upon completion of your study, please complete the enclosed pink Exempt Study Final Report form and return it to this office along with a report of your findings.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.
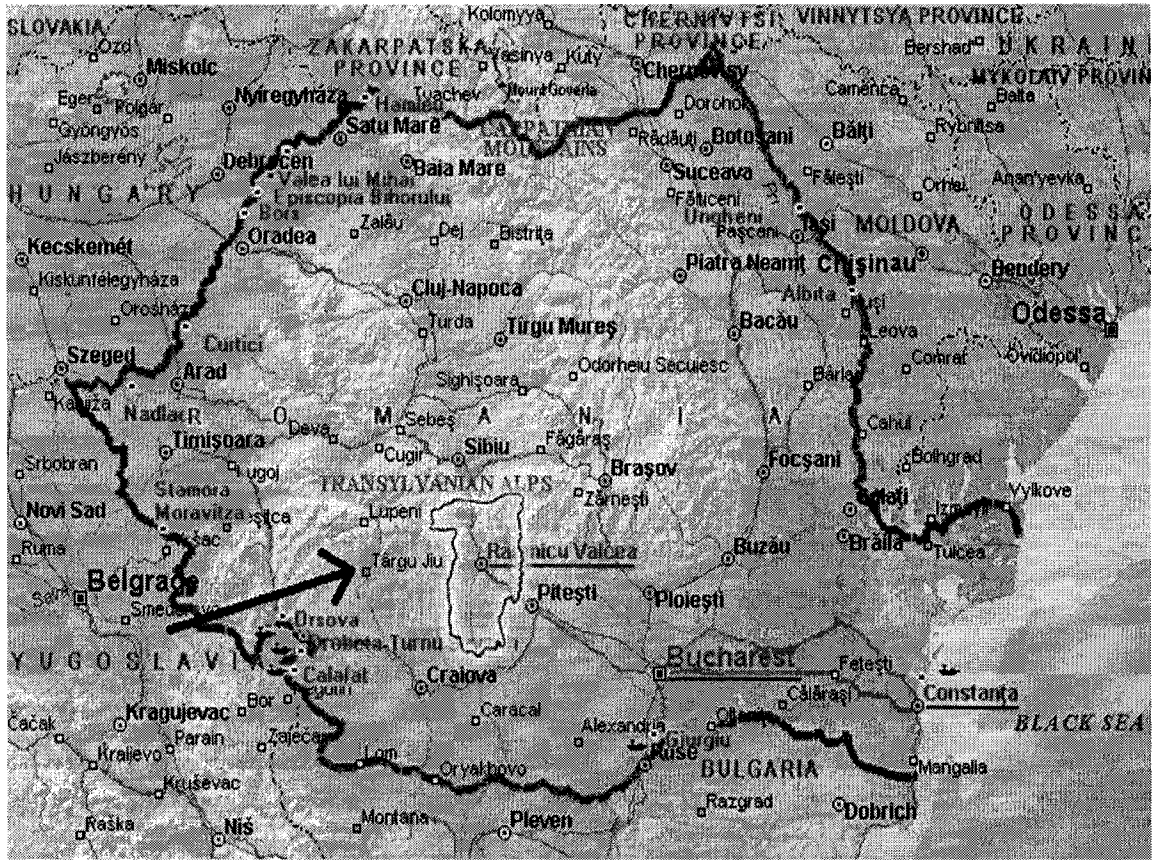
For the IRB,

Julie F. Simpson
Manager

cc: File
    Kalinowski, Michael

APPENDIX F: Romania Map

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