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RELACIÓN ENTRE LA DEPRESIÓN MATERNA Y EL BIENESTAR INFANTIL EN EL
LARGO PLAZO

TESIS PARA OPTAR AL GRADO DE MAGÍSTER EN
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1. Resumen

RELACIÓN ENTRE LA DEPRESIÓN MATERNA Y EL BIENESTAR INFANTIL EN
EL LARGO PLAZO

El bienestar infantil se ha posicionado como una problemática de especial preocupación en la actualidad. Especialmente posterior a la pandemia por COVID-19, momento en que se han identificado disminuciones en los niveles de bienestar y desarrollo infantil (Abufhele, Alejandra; Bravo, 2021; UNICEF-PNUD-OIT, 2021). Uno de los factores reconocidos en la literatura que se asocian con el bienestar infantil es la salud mental de la madre (Barboza-Salerno, 2020; Santelices et al., 2021). Sin embargo, es necesario explorar si esta relación permanece en el largo plazo y si se mantiene utilizando instrumentos informados tanto por los cuidadores como los propios niños. Adicionalmente, es relevante investigar si esta asociación puede ser mitigada por la inversión parental, factor fundamental en el desarrollo infantil reconocido en la literatura.

A partir de ello, se ha buscado responder a las siguientes preguntas: ¿la salud mental materna influencia el bienestar infantil en el largo plazo?, y ¿cómo interactúan la salud mental de la madre con la inversión parental en su relación con el bienestar infantil en el largo plazo?

Para abordarlo, se ha realizado un estudio correlacional utilizando datos longitudinales de la Encuesta Longitudinal de Primera Infancia de las rondas 2010, 2012 y 2017 con una muestra de 5.673 pares de niño-madre. Se analizó la relación existente entre la depresión materna (en el embarazo, posparto y en la primera infancia del hijo) y el bienestar infantil medido mediante CBCL (informado por cuidadores) y Test de Autoestima Escolar (informado por el niño). Se analizó, a su vez, su interacción con la inversión parental mediante el uso de variables instrumentales para abordar la endogeneidad.

Se identificó que la depresión materna está asociada negativamente con el bienestar infantil 7 años después medido tanto con el CBCL como con el Test de Autoestima Escolar (tantas desviaciones estándar), incluso controlando por el resultado previo de CBC. Adicionalmente, no se evidencia una mitigación de esta relación adversa mediante la inversión parental.

Estos hallazgos tienen una importancia para las políticas públicas y programas sociales orientados a promover el bienestar infantil, en tanto destaca la relevancia de abordar la depresión materna en la primera infancia por sus efectos negativos en el largo plazo también en el niño.

2. Agradecimientos

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4. Introducción

En 2020, la Comisión WHO-UNICEF-Lancet afirmó que, a pesar de las mejoras importantes en supervivencia, nutrición y educación en las últimas décadas, los niños de hoy enfrentan un futuro incierto (Clark et al., 2020, p. 605). La comisión enfatizó que los gobiernos tienen el deber de cuidado y protección para asegurar que los niños crezcan en entornos seguros y saludables. También afirmaron que las sociedades exitosas invierten en sus niños y protegen sus derechos (Clark et al., 2020, p. 605).

Esta situación se volvió más crucial con la aparición de la pandemia de COVID-19. Un informe de UNICEF, UNDP e ILO (2021) que examinó el impacto de la pandemia en el bienestar de niños y adolescentes en Chile reveló que un año después de su inicio, hubo una disminución general en varios aspectos del bienestar infantil. Los más afectados fueron la educación, la salud mental, la nutrición, los ingresos familiares y el trabajo infantil.

En cuanto a la salud mental de los niños, un estudio realizado por Abufhele y Bravo (2021) aplicó múltiples pruebas psicológicas para evaluar el estado de salud mental de los niños después de la pandemia en Chile. Realizaron un análisis comparativo entre los resultados de estas pruebas y los datos de la Encuesta Longitudinal de la Primera Infancia 2012 (ELPI) y ELPI 2017. Sus hallazgos revelaron una disminución en los niveles de desarrollo infantil, evaluados por el Inventario de Desarrollo Battelle-2, una reducción en las habilidades de vocabulario medidas mediante el Test de Vocabulario en Imágenes Peabody, una disminución en el desarrollo socioemocional utilizando la Lista de Chequeo del Comportamiento Infantil, y una disminución en la función ejecutiva, evaluada mediante la prueba Hearts and Flowers.

A pesar de los puntos mencionados, los desafíos en cuanto al bienestar infantil en Chile se remontan más atrás. En 2017, aproximadamente un tercio de los niños menores de 6 años no alcanzaron su máximo desarrollo (Daniela Astudillo & Jaime Leppe, 2020, p. 606). De manera similar, en 2012, la misma proporción de niños entre 4 y 11 años experimentó trastornos psiquiátricos como ansiedad, afectivos, alimentarios o de comportamiento disruptivo (De La Barra et al., 2012, p. 524).

Además, entre 2001 y 2008, la tasa de suicidios en individuos de 10 a 19 años alcanzó 5,7 por cada 100.000 habitantes en Chile, lo que fue 2 puntos más alto que la tasa en el resto del continente americano (Quinlan-Davidson et al., 2014). Además, un estudio realizado en la región sur del país durante el mismo año observó que el 34% de los estudiantes de secundaria tenían ideación suicida (Salvo G. & Castro S., 2013).

Estos diagnósticos pueden asociarse con lo que Alfaro et al. (2015) se refiere como el bienestar de niños y adolescentes. Por otro lado, el bienestar parental, especialmente la salud mental materna, es un factor significativo que afecta el bienestar infantil (Barboza-Salerno, 2020; Santelices et al., 2021). Santelices et al. (2021) enfatizan la importancia de estudiar la salud mental materna como un problema de salud pública generalizado y su impacto en el desarrollo socioemocional del niño. Su estudio longitudinal, que abarca dos años, proporciona evidencia convincente que respalda la influencia de la salud mental materna en el desarrollo socioemocional de los niños durante la primera infancia.

Además, recomiendan realizar investigaciones adicionales para explorar los efectos a largo plazo en el desarrollo infantil y utilizar instrumentos multi informantes para mitigar posibles sesgos.

Por otro lado, se ha demostrado que la inversión parental impacta significativamente en los resultados de los niños (Cunha et al., 2010; Del Boca et al., 2017; Hosokawa & Katsura, 2017; Todd & Wolpin, 2011). La investigación ha examinado la asociación entre la salud mental de los padres y la inversión parental, revelando que una mejor salud mental se asocia con mejores prácticas parentales (Yamauchi, 2010) y un aumento en la inversión en los niños (Baranov et al., 2020).

Basándonos en estos hallazgos, existe una conexión entre la salud mental materna y el bienestar de los niños, junto con una interacción con la inversión parental que merece una mayor exploración. Estudiar la relación a largo plazo entre la salud mental materna y el bienestar de los niños puede proporcionar ideas sobre si la relación perdura solo cuando la madre está afectada o si persiste con el tiempo. Además, puede arrojar luz sobre si la asociación permanece consistente durante otra etapa del desarrollo del niño.

Por lo tanto, el estudio tuvo como objetivo abordar las siguientes preguntas de investigación: ¿Influye la salud mental materna en el bienestar a largo plazo de los niños? ¿Y cómo interactúa la salud mental materna con la inversión parental en la influencia en el bienestar a largo plazo de los niños?

Para este estudio, el bienestar infantil será entendido en dos dimensiones. En primer lugar, como bienestar psicológico, asociado al desarrollo socioemocional alcanzado por un niño a una edad determinada, específicamente en su dimensión de problemas conductuales medido por el instrumento CBCL, aplicado al cuidador principal del niño. En segundo lugar, como bienestar subjetivo, relacionado con la evaluación de una persona respecto de distintos aspectos de su propia vida, el cual se midió a partir del Test de Autopercepción Escolar (TAE) aplicado directamente a los niños.

En base a la literatura mencionada, se plantea la hipótesis de que la salud mental de la madre entendida como depresión materna tiene una relación adversa con el bienestar infantil en el largo plazo tanto para el bienestar psicológico como para el bienestar subjetivo. Es decir, tanto si es observado mediante el cuidador principal o directamente en el niño. Por otro lado, se plantea que una inversión parental tiene la capacidad de mitigar este efecto negativo, disminuyendo su intensidad, incluso en el largo plazo.

Contrastar estas hipótesis mediante el estudio que se llevó a cabo contribuye en distintas dimensiones al campo de estudio del bienestar infantil y la salud mental. En primer lugar, permite entender en mayor profundidad la relación entre salud mental de la madre y el bienestar del niño, así como estudiar su asociación en un mayor espacio de tiempo a lo previamente abordado por la literatura. En segundo lugar, es un aporte en tanto utiliza instrumentos de aplicación directa al niño (TAE) para explorar temáticas anteriormente estudiadas mediante instrumentos indirectos (como el CBCL, aplicado al cuidador principal). Por último, este estudio se propone observar el bienestar infantil en sí mismo, como preocupación de política pública de relevancia a la luz de la problemática descrita previamente.

A continuación, se presenta el artículo confeccionado a partir del estudio. Se ha escrito en idioma inglés para publicarse en una revista especializada y consta de 7 secciones. En primer lugar, se introduce la temática mediante una problematización, la presentación del problema de investigación y una conceptualización que permite entender los alcances del estudio. En segundo lugar, se describe el tipo de estudio y los datos utilizados, se realiza un análisis descriptivo de principales tendencias de las variables relevantes, así como un análisis de datos perdidos y atrición. En tercer lugar, se especifica el modelo utilizado para responder a las preguntas de investigación, anticipando, adicionalmente, el ajuste de la primera etapa del modelo de Variable Instrumental. En cuarto lugar, se presentan los resultados de los modelos, destacando los hallazgos clave a la luz de las preguntas planteadas. En quinto lugar, se presenta una discusión, presentando las conclusiones respecto de las hipótesis planteadas inicialmente. Finalmente, la sección 6 y 7 son las referencias bibliográficas del artículo y los anexos, respectivamente. Para cerrar el informe aquí presentado, se resumen las conclusiones del artículo en idioma español.

5. Artículo postulado a revista especializada

Maternal Depression and Long-Term Child Well-being in Chile

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Abstract

This longitudinal study investigates the impact of maternal depression on long-term child well-being, considering the potential mitigating role of parental investment. Analyzing data from the Early Childhood Longitudinal Survey across three rounds (2010, 2012, and 2017) with 5,673 child-mother pairs, the research underscores a persistent negative association between maternal depression during pregnancy, postpartum, and early childhood, and child well-being seven years later. Even after accounting for prior outcomes, the adverse relationship persists, highlighting the need to address maternal mental health in early childhood for sustained positive child development. The study also explores the interaction between maternal mental health and parental investment, utilizing instrumental variables to address endogeneity. Surprisingly, no evidence is found to support the idea that parental investment mitigates the negative impact of maternal depression on child well-being. In the context of heightened concerns about child well-being post-COVID-19, these insights emphasize the urgency of targeted interventions and policies to support maternal mental health and enhance the long-term well-being of children.

Key words

Child Well-being; Maternal Depression; Early Childhood; Parental Investment; Longitudinal Study

Introduction

In 2020, the WHO-UNICEF-Lancet Commission stated that “despite the dramatic improvements in survival, nutrition, and education over recent decades, today’s children face an uncertain future” (Clark et al., 2020, p. 605). The commission emphasized that governments have a duty of care and protection to ensure that children grow in safe and healthy environments. They also asserted that successful societies invest in their children and protect their rights (Clark et al., 2020, p. 605).

This became more crucial with the emergence of the COVID-19 pandemic. A report by UNICEF, UNDP, and ILO (2021) examining the impact of the pandemic on the wellbeing of children and adolescents in Chile revealed that one year after its onset, there was an overall decline in various aspects of children’s wellbeing. Particularly affected were education, mental health, nutrition, household income, and child labor.

In terms of children’s mental health, a study conducted by Abufhele and Bravo (2021) applied multiple psychological tests to assess children’s state of mental health following the pandemic in Chile. They conducted a comparative analysis between the outcomes of these tests and the data from the *Early Childhood Longitudinal Survey 2012* (ELPI, in Spanish) and ELPI 2017. Their findings revealed a decline in child development levels, as assessed by the *Battelle Development Inventory-2*, a reduction in vocabulary skills measured through the *Peabody Picture Vocabulary Test*, a decrease in socio-emotional development using the *Child Behavior Checklist*, and a decline in executive function, as evaluated by the *Hearts and Flowers* test.

Despite the aforementioned points, the challenges regarding child well-being in Chile extend further back. In 2017, approximately one-third of children under the age of 6 did not reach their maximum development (Daniela Astudillo & Jaime Leppe, 2020, p. 606). Similarly, in 2012, the same proportion of children between the ages of 4 and 11 experienced psychiatric disorders such as anxiety, affective, eating, or disruptive behavioral disorder (De La Barra et al., 2012, p. 524).

Furthermore, between 2001 and 2008, the suicide rate among individuals aged 10 to 19 reached 5.7 per 100,000 inhabitants in Chile, which was 2 points higher than the rate in the rest of the American continent (Quinlan-Davidson et al., 2014). Additionally, a study conducted in the southern region of the country during the same year observed that 34% of secondary school students had suicidal ideations (Salvo G. & Castro S., 2013).

These diagnoses can be associated with what Alfaro et al. (2015) refer to as the well-being of children and adolescents. On the other hand, parental well-being, particularly maternal psychological well-being, is a

significant factor that impacts child well-being (Barboza-Salerno, 2020; Santelices et al., 2021). Santelices et al. (2021) emphasize the importance of studying maternal mental health as a widespread public health issue and its impact on child socio-emotional development. Their longitudinal study, spanning two years, provides compelling evidence supporting the influence of maternal mental health on children's socio-emotional development during early childhood. Furthermore, they recommend conducting additional research to explore the long-term effects on child development and employing multi-informant instruments to mitigate potential biases.

Additionally, parental investment has been shown to significantly impact children's outcomes (Cunha et al., 2010; Del Boca et al., 2017; Hosokawa & Katsura, 2017; Todd & Wolpin, 2011). Research has examined the association between parental mental health and parental investment, revealing that improved mental health is associated with better parental practices (Yamauchi, 2010) and increased investment in children (Baranov et al., 2020).

Based on these findings, a connection between maternal mental health and children's well-being exists, along with an interaction with parental investment that warrants further investigation. Studying the long-term relationship between maternal mental health and children's well-being can provide insights into whether the relationship endures only when the mother is affected or if it persists over time. Furthermore, it can shed light on whether the association remains consistent during another developmental stage of the child.

As such, our study aimed to address the following research questions: **Does maternal mental health influence long-term well-being in children? And how does maternal mental health interact with parental investment in influencing children's long-term well-being?**

Maternal depression, children's well-being, and parental investment

In this section, we conceptualize key variables of the study. Mental health comprises various dimensions, encompassing different types of mental disorders, as well as stress and a state of well-being that extends beyond the mere absence of these disorders. In this study, we focus on **maternal mental health**, specifically examining depressive symptoms. Depressive symptomatology is defined by Santelices et al. (2021) as “the behavioral manifestations that configure a mood disorder characterized by a depressed state that manifests itself through a loss of pleasure or interest, changes in appetite or weight, sleepiness, low energy, guilt, difficulties in thinking, concentrating, or making decisions, and thoughts about death, among other features appearing during the last two weeks” (Santelices et al., 2021, p. 2). Maternal depressive symptomatology can impact the mother-child relationship through reduced sensitivity and availability, as suggested by attachment theory (Santelices et al., 2021, p. 2).

Concerning **children's well-being**, Alfaro et al. (2015) identify three dimensions of the concept. First, subjective well-being, which is related to satisfaction in one's own life. Second, psychological well-being, which pertains to the development and optimal psychological functioning. Third, social well-being, which is related to interpersonal relationships with individuals and groups. In this paper, we will primarily focus on the first two dimensions.

Common measurements of these concepts often rely on parents reporting on their children's well-being. However, this approach can introduce biases linked to parents' understanding and their relationships with their children. To mitigate potential parental bias, it is essential to include instruments that allow children to self-report. Recent literature over the past decade has demonstrated that adopting this strategy has yielded novel and unexpected findings (Casas et al., 2013).

Subjective well-being can be understood as "a person's cognitive and affective evaluations of his/her life as whole and with regard to particular aspects of his/her life" (Rees et al., 2010 in Dinisman et al., 2015, p. 1). Its study has involved various approaches, including comparisons of well-being across different time periods (Bradshaw & Keung, 2011) or among countries (Bradshaw et al., 2011, 2013; Klocke et al., 2014). Additionally, researchers have focused on developing measurement strategies (Bradshaw, 2019; Casas & Rees, 2015; Rees et al., 2010) and exploring the underlying causes (Casas et al., 2013; Goswami, 2012; Kaye-Tzadok et al., 2017; Lee & Yoo, 2015).

The literature highlights several factors correlated with subjective well-being. These include social relationships, particularly within the family (Goswami, 2012; Kaye-Tzadok et al., 2017; Lee & Yoo, 2015), living context involving parental education, employment, and socioeconomic status (Casas et al., 2013; Main, 2014; Nikolova & Nikolaev, 2021; Sumargo & Novalia, 2018), child's activities (Casas et al., 2013; Lee & Yoo, 2015), and perceived academic achievement (Kaye-Tzadok et al., 2017).

On the other hand, **psychological well-being** in children is related to various concepts, including behavioral problems (internalizing and externalizing), cognitive development (e.g., vocabulary skills), and psychological distress. This study specifically focuses on behavioral problems as an indicator of overall psychological status. The literature identifies several factors associated with behavioral problems, such as socio-economic status (Hosokawa & Katsura, 2019; Okuzono et al., 2017), family environment (Durber et al., 2017), parental distress and depression (Barboza-Salerno, 2020; Santelices et al., 2021), parental skills (Barboza-Salerno, 2020), genetics (Van Der Valk et al., 2003), adverse experiences (Hunt et al., 2017), among others.

Parental investment comprises the contributions that parents provide to support their children. These contributions extend beyond mere financial support and encompass the allocation of time and the implementation of effective parenting strategies (Francesconi & Heckman, 2016). According to Cunha et al. (2010), parental investment includes both early and late investments, such as providing stimulating materials like books or musical instruments, spending quality time with the child, and engaging in various parenting practices. These various elements collectively constitute the concept of parental investment.

Parents' decisions regarding the extent of their investment in their children can be influenced by several factors, such as the child's inherent qualities, the transition into a compensatory investment mode, parental skills, access to parenting information, guidance from other parents or caregivers, household structure, and more (Francesconi & Heckman, 2016).

These factors introduce potential endogeneity concerns when assessing the level of parental investment, as it may be interconnected with child endowment, household income, available resources, or other variables. Addressing this endogeneity necessitates the implementation of strategies such as instrumental variables, which can involve factors like prices, employment rates, distances, among others.

Material and methods

Design and data source

We conducted a secondary analysis of longitudinal data from the *Early Childhood Longitudinal Survey* (ELPI), which was developed by the Ministry of Social Development and Family of Chile. The survey commenced in 2010 and consists of three rounds of data collection conducted in 2010, 2012, and 2017. The ELPI's sample was randomly selected and is representative at a national level. A comprehensive methodological description can be found in Ministerio de Desarrollo Social y Familia (2010, 2012, 2017, 2018a).

Participants

The study sample is drawn from the ELPI longitudinal survey and comprises 5,673 children. All of the children in this sample underwent psychological evaluations in 2010, 2012, and 2017. Additionally, they had a surveyed biological mother in all survey rounds, and they were at least 18 months old during the 2010 survey.

Sociodemographic data

The children included in the sample range in age from 8 to 12 years in 2017. Table 1 presents the sociodemographic distribution of the children included in the study sample.

Table 1. Sociodemographic distribution of the sample

Attribute	Frequency	Percentage
Sex of the child		
Boy	2820	49.7%
Girl	2853	50.3%
Primary Caregiver's occupational status		
In employment	3589	63.3%
Inactive	1806	31.8%
Unemployed	278	4.9%
SES		
Quintile I	1135	20%
Quintile II	1134	20%
Quintile III	1135	20%
Quintile IV	1134	20%
Quintile V	1135	20%

Children well-being

As mentioned previously, this study evaluated children's well-being in terms of subjective and psychological dimensions. The former, subjective well-being was assessed using the TAE Test (*Test de Autoestima Escolar*), which is designed to measure self-esteem at school. The TAE Test is based on the Piers-Harris Self-Concept Scale and consists of 23 statements pertaining to behavior, intellectual status, physical appearance, anxiety, popularity, happiness, and satisfaction. Participants respond with either "yes" (1 point) or "no" (0 points) to each statement. The raw score is calculated by summing the responses, followed by transforming it into a standardized T-score using a conversion table. The T-score ranges from a minimum of 21 to a maximum of 81. For more detailed information, please refer to Marchant et al. (2002) and Ministerio de Desarrollo Social (2018b)².

² The original conversion table contains empty values for raw scores that are close to the minimum. To resolve this issue, a score 1 unit lower than the nearest valid minimum value of the T-score is assigned for the corresponding age. For example, if the valid minimum value found in the transformation table for 8-year-olds is 23, a score of 22 is assigned to the blank spaces.

On the other hand, psychological well-being was assessed using the Child Behavior Checklist (CBCL), a widely utilized instrument in developmental research. Caregivers complete this questionnaire, consisting of 112 items that evaluate problem behaviors. Caregivers provide responses on a scale ranging from 0 ("not true") to 2 ("very true"). These items "load onto two broad-band scales (Internalizing and Externalizing) and eight narrow-band scales (Rule Breaking, Aggressive Behavior, Withdrawn-Depressed, Somatic Complaints, Anxious-Depressed, Social Problems, Thought Problems, and Attention Problems)" (Naar-King et al., 2004, p. 69). The resulting T-score indicates the severity of symptoms: a score below 60 indicates non-clinical symptoms, a score between 60 and 64 suggests the child is at risk for problem behaviors, and a score above 64 indicates clinical symptoms (Hosseini et al., 2022). Therefore, higher scores indicate a greater number of behavioral problems and potentially lower levels of psychological well-being in the child. For more detailed information, please refer to (Ministerio de Desarrollo Social y Familia, 2018a; Naar-King et al., 2004).

In Table 2, we present summarized statistics for both TAE and CBCL measures across the entire sample. Table 3 displays t-test results comparing TAE scores among different groups, including boys and girls, SES quintiles II and IV, and SES quintiles I and V. Table 4 presents t-test results for CBCL scores within the same groups.

The mean TAE score is higher in girls compared to boys³ and higher in SES Quintile V compared to SES Quintile I⁴, indicating greater subjective well-being. However, there is no significant difference between SES Quintiles II and IV for TAE scores. On the other hand, the mean CBCL score is higher in boys than girls, higher in SES Quintile I than Quintile V, and higher in SES Quintile II than Quintile IV, suggesting a higher prevalence of behavioral problems and lower levels of psychological well-being. These differences align with the findings of existing literature (Nong et al., 2022; Owens, 2016; Santelices et al., 2021; Sarfnaz et al., 2012).

³ Statistically significant difference at a 95% confidence level

⁴ Statistically significant difference at a 90% confidence level

Table 2. Summary statistics for TAE and CBCL⁵

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
TAE	5670	56.49	13.48	21	48	64	81
CBCL	5655	50.83	10.68	25	44	58	99

Table 3. T-test results for TAE

Group 1	Group 2	Group 1	Group 2	Difference
Girls	Boys	56.90	56.07	-0.84
Quintile 2	Quintile 4	56.57	56.43	-0.14
Quintile 1	Quintile 5	55.73	57.18	1.45***

*p<0.1; **p<0.05; ***p<0.01

Table 4. T-test results for CBCL⁶

Group 1	Group 2	Group 1	Group 2	Difference
Girls	Boys	50,42	51,25	0,82***
Quintile 2	Quintile 4	51,58	50,90	-0,69
Quintile 1	Quintile 5	51,45	49,03	-2,42***

*p<0.1; **p<0.05; ***p<0.01

Maternal Depression

To assess maternal depression, we employed the measurement proposed by Santelices et al. (2021). It consists of three questions included in ELPI: “Were you diagnosed with depression during pregnancy”, “after pregnancy, were you diagnosed with postpartum depression by a specialist?”, and “have you recently been diagnosed with depression by a specialist? (asked in 2012)⁷. These questions lead to three indicators: Depression During Pregnancy, Postpartum Depression, and Depression Level in 2012, respectively. Additionally, we created an indicator called Maternal Any Depression, which takes a value of 1 if the mother

⁵ CBCL score in 2017

⁶ CBCL score in 2017

⁷ These questions were binary, requiring yes or no answers.

experienced any of the three types of depression (i.e., during pregnancy, postpartum, or in 2012), and 0 if she did not experience any of them.

Table 5 displays the incidence percentages for each depression indicator, while Table 6 presents the differences in depression incidence (for each indicator) among girls and boys, SES Quintile II and SES Quintile IV, and SES Quintile I and SES Quintile V. Overall, there is no noticeable difference between girls and boys in terms of maternal depression. However, a statistically significant difference is observed in the incidence of depression between SES Quintile I and V. Specifically, postpartum depression is higher in Quintile V, whereas pregnancy depression and the 2012 depression level are more prevalent in Quintile I.

Table 5. Maternal depression incidence

Variable	N	Percentage
Maternal Any Depression	1358	24.25%
Maternal Postpartum Depression	640	11.40%
Maternal Depression During Pregnancy	592	10.44%
Maternal Depression Level in 2012	642	11.34%

Table 6. Maternal depression T-test results

Variable	Group 1	Group 2	Group 1	Group 2	Difference
Maternal Any Depression	Girls	Boys	23.79%	24.71%	0.92%
Maternal Any Depression	Quintile II	Quintile IV	24.39%	26.73%	2.34%
Maternal Any Depression	Quintile I	Quintile V	24.22%	21.89%	-2.33%
Maternal Postpartum Depression	Girls	Boys	11.27%	11.54%	0.27%
Maternal Postpartum Depression	Quintile II	Quintile IV	10.96%	13.76%	2.80%**
Maternal Postpartum Depression	Quintile I	Quintile V	8.94%	11.71%	2.77%**
Maternal Depression During Pregnancy	Girls	Boys	10.41%	10.46%	0.05%
Maternal Depression During Pregnancy	Quintile II	Quintile IV	11.32%	11.17%	-0.15%
Maternal Depression During Pregnancy	Quintile I	Quintile V	11.49%	7.93%	-3.56%***
Maternal Depression Level in 2012	Girls	Boys	11.03%	11.66%	0.63%
Maternal Depression Level in 2012	Quintile II	Quintile IV	10.91%	11.74%	0.83%
Maternal Depression Level in 2012	Quintile I	Quintile V	13.21%	9.72%	-3.49%***

*p<0.1; **p<0.05; ***p<0.01

Parental Investment

Parental investment was assessed using two indicators. The first indicator is the Home Observation for Measurement of the Environment (HOME), which provides a comprehensive assessment of the nurturing environment in which the child is raised (Totsika & Sylva, 2004, p. 25). The instrument consists of 45 items presented as statements that are scored as either YES or NO. A higher total score on the HOME indicates a more nurturing and stimulating home environment (Totsika & Sylva, 2004). In this study, we utilized the version administered by ELPI, which included a selection of 27 items in the 2010 round and 27 items in the 2012 round. These items were assessed through observations and interviews with the primary caregiver (Totsika & Sylva, 2004). We constructed a scale of 19 items⁸ that were included in both the 2010 and 2012 rounds of ELPI. Therefore, the HOME score in this case ranges from 0 to 19.

⁸ The list of items included in the scale is provided in the annexes.

The second indicator utilized to evaluate parental investment is a scale comprising 10 items administered during the primary caregiver interview in the 2017 round. These items pertain to stimulating activities that involve the caregiver's dedicated time and attention toward the child. In this study, this scale is referred to as the Parental Time Investment scale, with scores ranging from 0 to 10.

In Table 7, we present summary statistics for both the HOME and Parental Time Investment (PTI) measures across the entire sample. Table 8 displays the t-test results comparing HOME scores among different groups, including boys and girls, SES quintiles II and IV, and SES quintiles I and V. Table 9 presents the t-test results for PTI scores within the same groups.

Regarding both the HOME and PTI measures, the mean score is higher in SES Quintile V compared to SES Quintile I, indicating a greater level of overall parental investment. However, there is no significant difference between girls and boys in either the HOME or PTI scores.

Table 7. Summary statistics for HOME and PTI

Variable	N	Mean	Std. Dev.	Min	Pctl. 25	Pctl. 75	Max
HOME	5629	15.64	2.65	3	14	18	19
Parental Time Investment	4556	6.202	2.85	0	4	9	10

Table 8. HOME T-test results

Group 1	Group 2	Group 1	Group 2	Difference
Girls	Boys	15.65	15.63	-0.02
Quintile 2	Quintile 4	15.28	16.02	0.75***
Quintile 1	Quintile 5	14.81	16.42	1.61***

*p<0.1; **p<0.05; ***p<0.01

Table 9. PTI T-test results

Group 1	Group 2	Group 1	Group 2	Difference
Girls	Boys	6.18	6.23	0.05
Quintile 2	Quintile 4	6.03	6.11	0.08
Quintile 1	Quintile 5	6.19	6.61	0.42***

*p<0.1; **p<0.05; ***p<0.01

Missing data and attrition

Table 10 presents the tally of missing data for each pertinent variable in the study, uncovering significant data loss in the Parental Time Investment (PTI) variable. The absence of data in the PTI variable primarily arises due to the inclusion of a "non-applicable" option in each of the ten items comprising the PTI scale. To address potential non-random patterns in the missing data, we performed t-test analyses comparing the means between the original sample and the subset of observations with complete data across all variables.

The results, presented in Table 11, indicate no statistically significant differences between the sample with complete data and the original dataset.

Table 10. Variables with missing data

Variable	Count missing	Count valid	Percentage missing
Parental Time Investment (PTI)	1117	4556	19.69%
CBCL 2012	377	5296	6.65%
Maternal Any Depression	73	5600	1.29%
Maternal Postpartum Depression	61	5612	1.08%
Parental Investment (HOME)	44	5629	0.78%
CBCL 2017	18	5655	0.32%
CBCL 2010	16	5657	0.28%
Maternal Depression Level in 2012	12	5661	0.21%
TAE	3	5670	0.05%
Years of schooling Primary Caregiver	2	5671	0.04%

Table 11 T-test results between the full sample (group 1) and complete data sample (group 2)

Variable	Mean Group 1	Mean Group 2	Difference	N Group 1	N Group 2
Parental Time Investment (PTI)	6.20	6.20	0.00	4556	4152
Maternal Any Depression	0.24	0.25	0.00	5600	4152
Maternal Depression Level in 2012	0.11	0.12	0.00	5661	4152
CBCL 2017	50.83	50.87	0.04	5655	4152
Parental Investment (HOME)	15.64	15.61	-0.03	5629	4152
Maternal Postpartum Depression	0.11	0.11	0.00	5612	4152
Parents' average working hours (2010)	25.71	25.48	-0.23	5673	4152
Child's sex (dummy)	0.50	0.50	0.00	5673	4152
Quintile V (dummy)	0.20	0.19	-0.01	5673	4152
CBCL 2010	60.11	60.15	0.04	5657	4152
CBCL 2012	55.06	55.15	0.09	5296	4152
Years of schooling Primary Caregiver	11.74	11.71	-0.03	5671	4152

*p<0.1; **p<0.05; ***p<0.01

The study sample displayed an attrition rate of 41%. To address this substantial attrition, we conducted t-test analyses to compare the means between the 2010 study sample and the sample with data for all rounds, specifically focusing on variables recorded in 2010. No statistically significant differences were observed between the two groups for any of the variables, except for monthly household income in 2010.

Table 12 T-test results between the 2010 sample and sample with data for 2010, 2012, and 2017

Variable	2010 sample	Sample with data for 2010, 2012, and 2017	Difference	N Group 1	N Group 2
Parental Investment (HOME)	15.60	15.62	0,02	10996	6488
Child's sex (dummy)	0.50	0.50	0,00	11083	6539
Maternal Pregnancy Depression	0.11	0.11	-0,01	11083	6539
Maternal Postpartum Depression	0.12	0.12	-0,01	10957	6465
Monthly household income in 2010 (CLP)	\$414.402	\$396.510	-\$17.891***	8403	5050
Parents' average working hours (2010)	25.52	25.73	0,20	11083	6539
CBCL 2010	59.79	60.05	0,25	11049	6519

*p<0.1; **p<0.05; ***p<0.01

Model Specification

This study aimed to explore the relationship between maternal mental health (maternal depression) and children's long-term well-being. We also examined how the interaction between maternal depression and parental investment influences children's well-being. Additionally, we considered covariates to account for potential confounding factors. We conducted the analysis twice, once for psychological well-being (CBCL) and once for subjective well-being (TAE).

The linear regression model used to explore the relationship between maternal mental health and parental investment with psychological well-being (CBCL) is given by:

$$cbcl_{t,i} = \beta_0 + \beta_1 matdep_{t-1,i} + \beta_2 home_{t-2,i} + \beta_3 pti_{t,i} + \beta_4 cbcl_{t-1,i} + \beta_5 cbcl_{t-2,i} + \beta_5 \mathbf{L}_i + \varepsilon \quad (1)$$

In this equation, $cbcl_i$ represents a CBCL score for child i , reflecting their well-being. The subscripts with t , $t-1$, and $t-2$ correspond to 2017, 2012, and 2010 measurements, respectively. β_0 is the constant term, $matdep_{t-1,i}$ represents maternal depression for child i (in dummy variable form), $home_{t-2,i}$ denotes HOME score for child i , and $pti_{t,i}$ represents parental time investment for child i . Additional covariates are included in the vector \mathbf{L}_i .

The regression coefficients are denoted as $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$, while ε represents the error term. The primary coefficient of interest for this study is β_1 , where a positive value indicates an adverse relationship between maternal depression and a child's psychological well-being, as a higher CBCL score denotes lower child psychological well-being.

Additionally, we acknowledged the possibility of parental investment being associated with unmeasured variables, such as parental perception of child endowment and actual child endowment (Yamauchi, 2010). This introduces the possibility of $\text{cov}(I_i, \varepsilon_i) \neq 0$ and $\text{cov}(J_i, \varepsilon_i) \neq 0$, as well as the potential for a reciprocal relationship between parental investment variables and child well-being. For instance, a perception of low child well-being might lead to increased parental investment, while greater parental investment could enhance the child's well-being.

To address the potential endogeneity related to parental investment, we employed a Two-Stage Least Squares (2SLS) method. We used the rate of employment within the child's residential commune as an instrument to predict Parental Time Investment (pti_i), as presented in the following equation:

$$cbcl_{t,i} = \beta_0 + \beta_1 matdep_{t-1,i} + \beta_2 home_{t-2,i} + \beta_3 \widehat{pti}_{t,i} + \beta_4 cbcl_{t-1,i} + \beta_4 cbcl_{t-2,i} + \beta_5 L_i + \varepsilon \quad (2)$$

In the first stage of the 2SLS instrumental variable analysis, we observed a significant coefficient of -0.061 ($p = 0.016$), an F statistic of 14.7, and an adjusted R-squared value of 0.003. Moreover, the instrumental variable exhibited no significant relationship with CBCL and TAE, even after controlling for PTI⁹.

To investigate the interaction between maternal mental health and current parental time investment on long-term child well-being, we introduced an interaction term in the linear regression models denoted by $matdep_{t-1,i} * \widehat{pti}_{t,i}$. This interaction term helped us understand how the relationship between maternal mental health and parental investment jointly affects the child's well-being. The modified regression equations for both CBCL and TAE scores will be as follows:

$$cbcl_{t,i} = \beta_0 + \beta_1 matdep_{t-1,i} + \beta_2 home_{t-2,i} + \beta_3 \widehat{pti}_{t,i} + \beta_4 cbcl_{t-1,i} + \beta_4 cbcl_{t-2,i} + \beta_5 L_i + \beta_6 matdep_{t-1,i} * \widehat{pti}_{t,i} + \varepsilon \quad (3)$$

Incorporating this interaction term into the regression models enabled us to investigate whether the influence of maternal mental health on child well-being varies across different levels of parental

⁹ See annex A and annex B.

investment. This provided valuable insights into how these critical factors jointly affect long-term well-being in children.

Results

Maternal depression and long-term child psychological well-being

In this section, we present the results of models investigating the relationship between maternal depression and child psychological well-being. To examine the correlation between maternal depression and the long-term psychological well-being of children, as measured by the Child Behavior Checklist (CBCL), we employed a series of four regression models. The first model is an ordinary least squares (OLS) model containing the designated explanatory variable of interest (Equation 1). The second model is an instrumental variable (IV) model with the same set of explanatory variables. The third model is an OLS model including an interaction term between maternal depression and parental investment (Equation 2), and the fourth model is an IV model incorporating the same variables as the third model (Equation 3). Both Model 2 and Model 4 use an instrument to address the potential endogeneity of the parental investment (PTI) variable.

Table 13. Results of regression models for CBCL 2017

Comparative Regression Results				
	Dependent variable:			
	CBCL 2017			
	OLS	instrumental variable	OLS	instrumental variable
	(1)	(2)	(3)	(4)
CBCL 2010	0.189*** (0.016)	0.191*** (0.016)	0.189*** (0.016)	0.191*** (0.017)
CBCL 2012	0.205*** (0.016)	0.214*** (0.020)	0.205*** (0.016)	0.214*** (0.020)
Maternal Any Depression	0.158*** (0.034)	0.159*** (0.034)	0.254*** (0.079)	0.427 (1.567)
Parental Investment (HOME 2010)	0.003 (0.006)	0.001 (0.007)	0.003 (0.006)	0.001 (0.007)
Parental Investment (PTI 2017)	-0.028*** (0.005)	0.040 (0.096)	-0.024*** (0.006)	0.050 (0.106)
Child's sex (boy)	0.045 (0.029)	0.041 (0.030)	0.045 (0.029)	0.041 (0.030)
Quintile 2 Income	0.034 (0.045)	0.049 (0.051)	0.033 (0.045)	0.047 (0.052)
Quintile 3 Income	0.037 (0.046)	0.051 (0.051)	0.037 (0.046)	0.049 (0.053)
Quintile 4 Income	0.028 (0.048)	0.045 (0.055)	0.028 (0.048)	0.046 (0.055)
Quintile 5 Income	0.008 (0.051)	-0.003 (0.055)	0.007 (0.051)	-0.005 (0.055)
Years of schooling Primary Caregiver	-0.016*** (0.005)	-0.020** (0.008)	-0.016*** (0.005)	-0.020** (0.009)
Primary Caregiver in employment	-0.009 (0.032)	0.002 (0.036)	-0.008 (0.032)	0.006 (0.040)
Parents' average working hours (2010)	0.0002 (0.001)	-0.00001 (0.001)	0.0002 (0.001)	-0.00004 (0.001)
Child's age	-0.012 (0.017)	0.024 (0.054)	-0.012 (0.017)	0.022 (0.056)
Maternal Any Depression:Parental Investment (PTI 2017)			-0.015 (0.012)	-0.043 (0.254)
Constant	0.355 (0.219)	-0.371 (1.057)	0.334 (0.220)	-0.416 (1.062)
Model	reduced	reduced	extended	extended
Observations	4,154	4,154	4,154	4,154
R ²	0.137	0.101	0.137	0.102
Adjusted R ²	0.134	0.098	0.134	0.099
Residual Std. Error	0.928 (df= 4139)	0.947 (df= 4139)	0.928 (df= 4138)	0.946 (df= 4138)
F Statistic	46.904*** (df= 14; 4139)		43.905*** (df= 15; 4138)	

Note:

*p<0.1; **p<0.05; ***p<0.01

Note 1: quintile I is used as a reference point.

Note 2: a higher CBCL score indicates lower levels of psychological well-being.

The model presented in column 1 of Table 13 demonstrates an association between previous CBCL scores (both in 2010 and 2012), maternal depression, parental investment in 2017, years of schooling of the primary caregiver, and CBCL scores in 2017. The second model, presented in Table 13, illustrates how the

instrumental variable (IV) model, with the same explanatory variables, maintains the adverse association of maternal depression with child psychological well-being whereas PTI (parental investment) loses its relationship with it.

In the third model, as presented in Table 13, we observed that the interaction between maternal depression and parental investment in 2017, concerning a child's psychological well-being, is not statistically significant when using an Ordinary Least Squares (OLS) model. The same result persists when employing the Instrumental Variable (IV) model, as shown in the fourth model. Furthermore, in this model, maternal depression lacks a discernible association with CBCL 2017 as well.

Maternal depression and long-term child subjective well-being

After exploring child psychological well-being, we extended our investigation to examine the correlation between maternal depression and the long-term subjective well-being of children (TAE). We applied a similar set of four regression models, organized in the same manner as presented in Table 13, ensuring consistency with the chosen explanatory variables in comparison to the psychological well-being analysis. The subsequent section presents the outcomes of these analyses.

Table 14. Results of regression models for TAE

	Comparative Regression Results			
	Dependent variable:			
	TAE		TAE	
	OLS	instrumental variable	OLS	instrumental variable
	(1)	(2)	(3)	(4)
CBCL 2010	-0.091*** (0.017)	-0.092*** (0.017)	-0.091*** (0.017)	-0.094*** (0.018)
CBCL 2012	-0.085*** (0.017)	-0.089*** (0.021)	-0.085*** (0.017)	-0.090*** (0.022)
Maternal Any Depression	-0.110*** (0.036)	-0.110*** (0.036)	-0.115 (0.084)	-1.302 (1.706)
Parental Investment (HOME 2010)	0.021*** (0.006)	0.022*** (0.007)	0.021*** (0.006)	0.023*** (0.007)
Parental Investment (PTI 2017)	0.015*** (0.005)	-0.014 (0.101)	0.015** (0.006)	-0.057 (0.114)
Child's sex (boy)	-0.041 (0.031)	-0.039 (0.031)	-0.041 (0.031)	-0.041 (0.032)
Quintile 2 Income	0.073 (0.048)	0.066 (0.053)	0.073 (0.048)	0.076 (0.056)
Quintile 3 Income	0.034 (0.049)	0.028 (0.053)	0.034 (0.049)	0.038 (0.057)
Quintile 4 Income	0.026 (0.051)	0.018 (0.057)	0.026 (0.051)	0.015 (0.059)
Quintile 5 Income	-0.015 (0.054)	-0.010 (0.057)	-0.015 (0.054)	-0.003 (0.059)
Years of schooling Primary Caregiver	0.012** (0.006)	0.014 (0.009)	0.012** (0.006)	0.012 (0.009)
Primary Caregiver in employment	-0.100*** (0.033)	-0.105*** (0.037)	-0.100*** (0.033)	-0.120*** (0.043)
Parents' average working hours (2010)	0.0002 (0.001)	0.0003 (0.001)	0.0002 (0.001)	0.0005 (0.001)
Child's age	0.007 (0.018)	-0.008 (0.056)	0.007 (0.018)	-0.001 (0.060)
Maternal Any Depression:Parental Investment (PTI 2017)			0.001 (0.012)	0.193 (0.276)
Constant	-0.556** (0.232)	-0.241 (1.104)	-0.555** (0.233)	-0.048 (1.139)
Model	reduced	reduced	extended	extended
Observations	4,163	4,163	4,163	4,163
R ²	0.040	0.034	0.040	-0.020
Adjusted R ²	0.037	0.030	0.037	-0.024
Residual Std. Error	0.984 (df = 4148)	0.987 (df = 4148)	0.984 (df = 4147)	1.014 (df = 4147)
F Statistic	12.471*** (df = 14; 4148)		11.637*** (df = 15; 4147)	

Note: *p<0.1; **p<0.05; ***p<0.01

Note 1: quintile V is used as a reference point.

Note 2: a higher TAE score indicates higher levels of psychological well-being.

The model outlined in column 1 of Table 14 reveals an association among prior CBCL scores (both in 2010 and 2012), maternal depression, parental investment in 2010 (HOME), parental investment in 2017, primary caregiver's years of schooling and employment status, and TAE.

Regarding the second model presented in Table 14, paralleled what was observed in the case of subjective child well-being. The parental investment in 2017 (PTI) loses its significance in the relationship with TAE when its endogeneity is addressed with an IV model, and the same occurs for the schooling variable.

Transitioning to the third model depicted in Table 14, it is noteworthy that the interaction between maternal depression and parental investment in 2017 concerning a child's psychological well-being lacks statistical significance. Similarly, for the IV model in the fourth column, with the same set of explanatory variables, this lack of statistical significance is observed. For both the OLS and IV extended models, maternal depression has no identifiable association with TAE when incorporating the interaction.

Discussion

This study aimed to examine the connection between maternal mental health and subsequent child well-being, both in its psychological and subjective aspects. It also explored how maternal mental health interacts with parental investment in influencing child well-being.

Maternal depression during pregnancy, postpartum, or a child's early years is linked to the child's well-being 5 to 7 years later, covering psychological and subjective dimensions. This extends previous findings by Santelices et al. (2021), which indicated a relationship between maternal depression and child behavioral problems within a 2-year window.

There is no evidence to suggest that parental investment in 2017 alters this adverse association between maternal depression and child well-being in both psychological and subjective dimensions.

Early parental investment, gauged through the HOME instrument in 2010, demonstrates a favorable correlation with subjective well-being in 2017. Yet, compelling evidence supporting a similar relationship with psychological well-being in 2017 is not present. Strikingly, antecedent psychological well-being (measured in 2010 and 2012) is connected to both psychological and subjective well-being in 2017.

While this paper primarily centered on the association between maternal depression in early childhood and subsequent child well-being, it is crucial to recognize that the variables within the models account for less than 14% of the variance in child psychological well-being and less than 4% in child subjective well-being models. This underscores the significance of numerous unexplored factors in influencing child well-being, particularly within the subjective dimension.

These findings provide palpable insights for social programs and policies that focus on improving child well-being. They underscore the significance of maternal mental health, particularly in the context of an apparent lack of mitigation of its adverse association with child well-being through parental investment.

Future research should explore the causal relationship and understand how maternal depression affects long-term child well-being, while also investigating whether this connection remains significant beyond the initial 7 years and into adolescence.

6. Conclusión

Este estudio tuvo como objetivo examinar la relación entre la salud mental materna y el bienestar del niño en el largo plazo, tanto en la dimensión psicológica como subjetiva. Su vez, se analizó la interacción entre la salud mental materna y la inversión parental en la influencia en el bienestar del niño.

La depresión materna durante el embarazo, el posparto o los primeros años de vida del niño tiene una relación adversa con el bienestar del niño incluso 5 a 7 años después, abarcando dimensiones psicológicas y subjetivas. Esto amplía hallazgos anteriores de Santelices et al. (2021), que indicaron una relación entre la depresión materna y los problemas conductuales del niño (internalizantes y externalizantes) en un período de 2 años.

Habiendo estudiado la interacción entre inversión parental y depresión materna, no se encontró evidencia que sugiera que la inversión parental en 2017 altera esta asociación adversa entre la depresión materna y el bienestar del niño en dimensiones psicológicas y subjetivas.

Por su parte, la inversión parental temprana, evaluada a través del instrumento HOME en 2010, muestra una correlación favorable con el bienestar subjetivo. Sin embargo, no se encontró evidencia que respalde una relación similar con el bienestar psicológico. Es relevante destacar que el bienestar psicológico previo (medido en 2010 y 2012 mediante el CBCL) está conectado tanto con el bienestar psicológico como con el subjetivo en 2017.

Si bien este documento se centró, principalmente, en la asociación entre la depresión materna en la primera infancia y el bienestar posterior del niño, es crucial reconocer que las variables dentro de los modelos explican menos del 14% de la variabilidad en el bienestar psicológico del niño y menos del 4% en los modelos de bienestar subjetivo del niño. Esto subraya la importancia de numerosos factores no explorados en la influencia del bienestar del niño, especialmente en la dimensión subjetiva.

Estos hallazgos proporcionan ideas valiosas para programas sociales y políticas que se centran en mejorar el bienestar del niño. Destacan la importancia de la salud mental materna, especialmente en el contexto de una aparente falta de mitigación de su asociación adversa con el bienestar del niño a través de la inversión parental. Se recomienda que el diseño de programas y políticas públicas relacionados tanto con el bienestar infantil como con la salud mental de las mujeres madres considere este aspecto, especialmente en la prevención y promoción del bienestar infantil en edades tempranas.

Por medio de este estudio se sugieren líneas de investigación futuras que exploren la relación causal entre depresión materna y bienestar infantil, así como el entendimiento en profundidad de los mecanismos por los cuales la depresión materna está asociada con el bienestar a largo plazo del niño. Además, se vuelve relevante conocer si esta relación se extiende más allá de los 7 años de vida, llegando hasta etapas más avanzadas del desarrollo.

y comprender cómo la depresión materna afecta el bienestar a largo plazo del niño, al mismo tiempo que investiga si esta conexión sigue siendo significativa más allá de los primeros 7 años y se extiende hasta la adolescencia.

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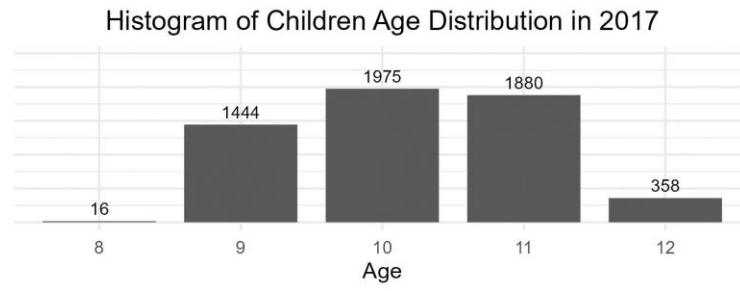
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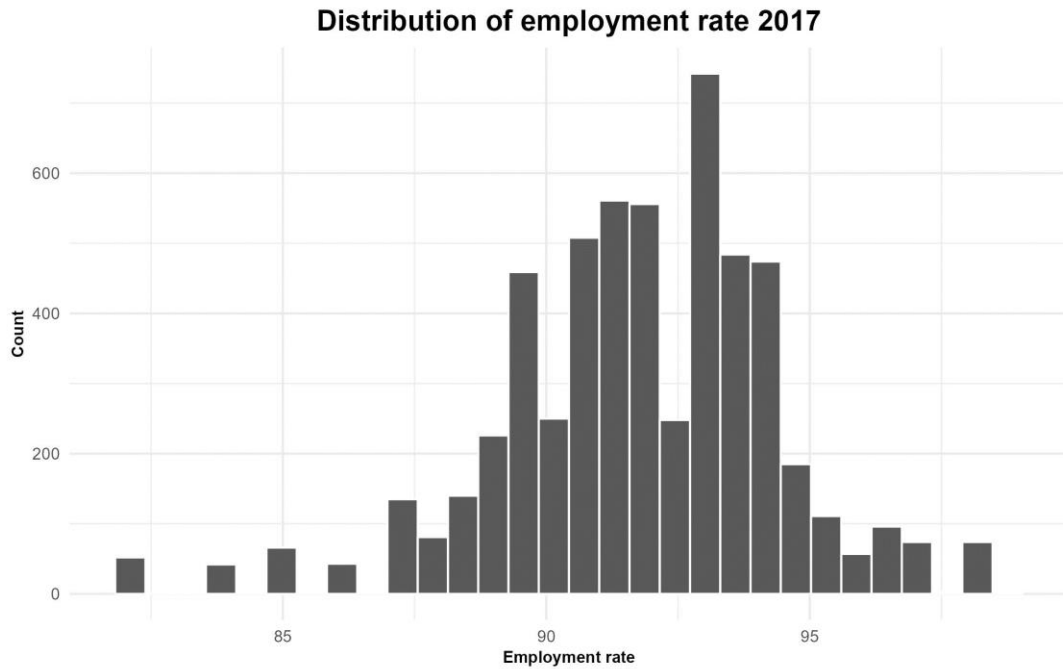
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8. Annexes

Annex A.



Annex B. Distribution of employment rate in 2017



Annex C. First stage of 2SLS regression results. Equation 3¹⁰.

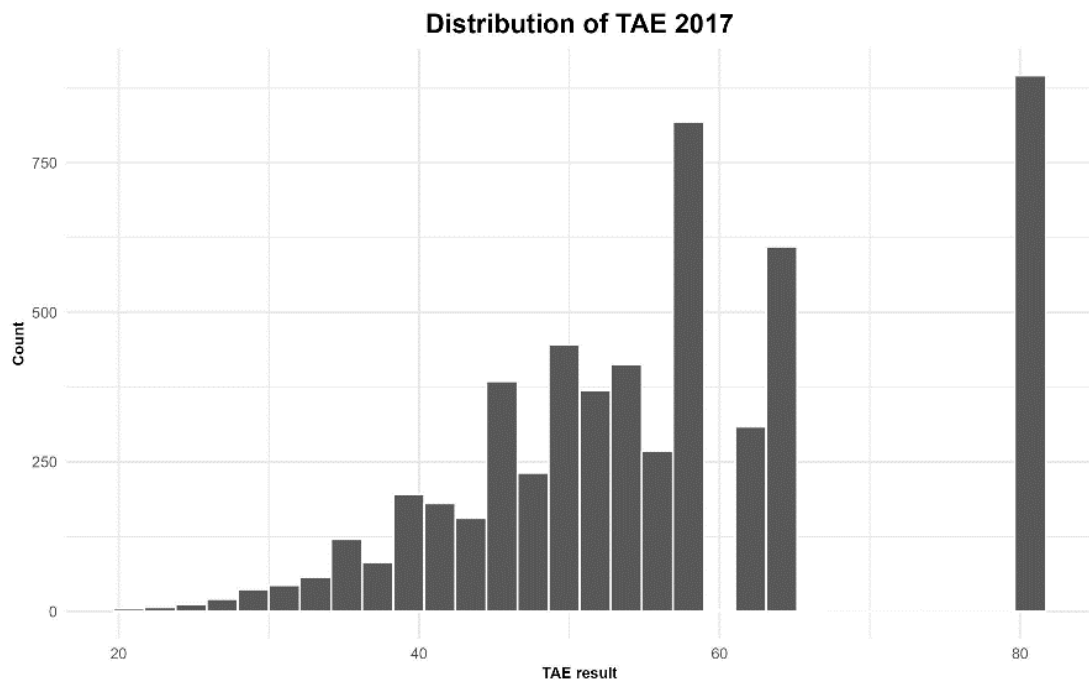
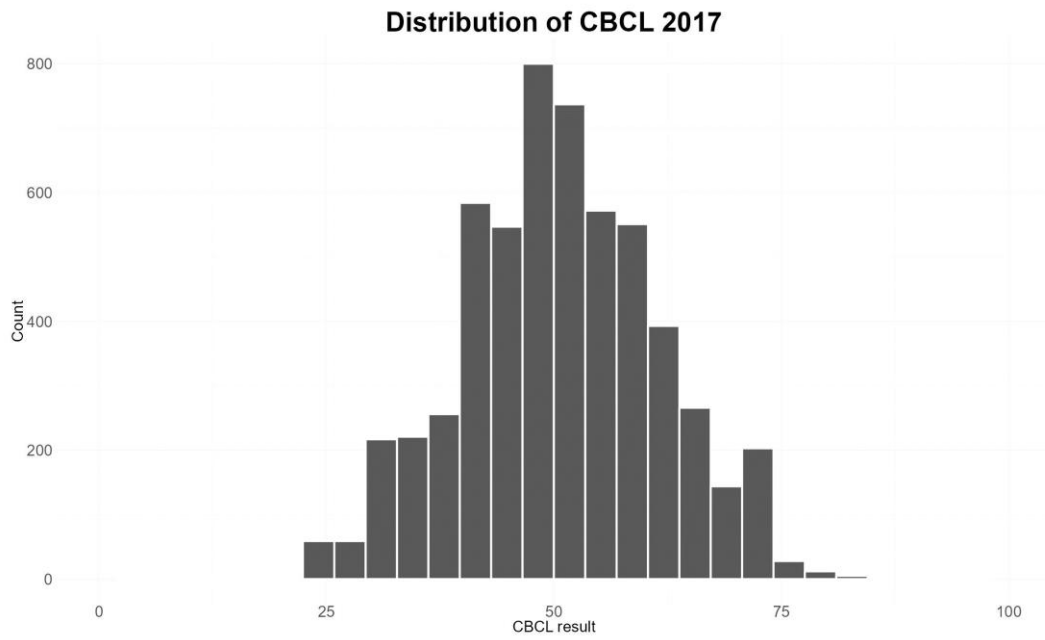
Regression Results	
<i>Dependent variable:</i>	
PTI	
Employment rate	-0.061*** (0.016)
Constant	11.812*** (1.463)
Observations	4,556
R ²	0.003
Adjusted R ²	0.003
Residual Std. Error	2.846 (df = 4554)
F Statistic	14.723*** (df = 1; 4554)
<i>Note:</i>	* p<0.1; ** p<0.05; *** p<0.01

Annex. D Association between the employment rate within the child's residential commune and child well-being

Regression Results		
<i>Dependent variable:</i>		
	CBCL (1)	TAE (2)
Employment rate	-0.005 (0.060)	0.003 (0.075)
Parental Investment (PTI 2017)	-0.382*** (0.055)	0.285*** (0.070)
Constant	53.725*** (5.513)	54.537*** (6.946)
Observations	4,542	4,554
R ²	0.010	0.004
Adjusted R ²	0.010	0.003
Residual Std. Error	10.638 (df = 4539)	13.416 (df = 4551)
F Statistic	23.750*** (df = 2; 4539)	8.313*** (df = 2; 4551)
<i>Note:</i>	* p<0.1; ** p<0.05; *** p<0.01	

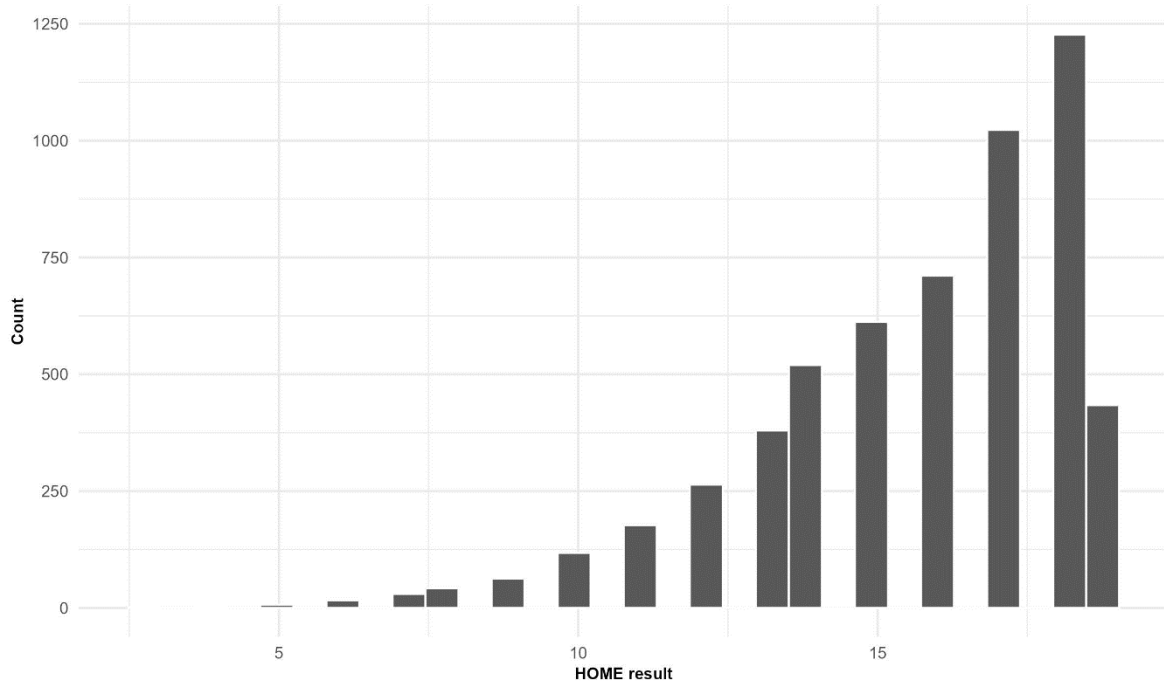
¹⁰ Tables formatted using stargazer package for R (Hlavac, 2022).

Annex E. Distribution of CBCL and TAE



Annex F. Distribution of HOME and PTI

Distribution of HOME



Distribution of PTI

