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Abstract

Social investment in children through the provision of high-quality childcare is high on political and academic agendas across the European Union. There are two distinctive themes in the SI and childcare literature: childcare program quality at the country level examining 'Matthew Effects' and the individual experiences of service users, namely, individuals with small children. However, studies have been mainly focused on childcare accessibility and use, which is one of the major disadvantages in SI and childcare literature. Yet, little is known about what people think about childcare quality, as this issue is under-researched in the literature and focuses on relatively broad socio-economic characteristics. How do 'Matthew Effects' in childcare drive satisfaction with childcare quality among formal childcare users? Current research takes a *top-down* approach by looking at public investments in childcare and finds that higher investments tend to flow to better-off people, leading to higher participation rates in formal childcare services (Cantillon 2011; Pavolini and Van Lancker, 2018; Van Lancker and Ghysels, 2012). However, existing literature does not ask how satisfied better-off people, who benefit more from childcare programmes, are with the quality of childcare services. Drawing on analysis of data from Eurofound's European Quality of Life Survey 2016, this study contributes to these debates by investigating individual satisfaction with childcare services' quality using a *bottom-up* approach for the EU (27) and the UK. The research examines the extent to which educational background and income - two variables closely associated with socio-economic status - are associated with individual satisfaction with childcare quality. The analysis of formal childcare users suggests that existing Matthew Effects in childcare use do not necessarily mean more satisfaction with childcare quality. We

also find that higher educational background is inversely related to user satisfaction with childcare. This suggests that more-educated individuals have higher expectations about quality, and they also adapt these expectations in response to their experience with childcare services over time. We also explore a variable central to the approach - whether higher public expenditures on childcare lead to higher individual satisfaction with childcare quality. The findings show that childcare expenditure matters, but what matters more is the public spending context: individuals in low-and high-spending countries have higher levels of satisfaction, compared to those in medium-expenditure countries. The findings are important to the existing Social Investment and childcare literature examining Matthew Effects and suggest that childcare quality should be analysed more broadly, taking both a top-down and bottom-up approach.

Keywords: Social Investment, childcare satisfaction, Matthew Effects, childcare services

Introduction

Social investment (SI), especially early childhood education and care (ECEC), is high on political and academic agendas across the European Union (EU). To date, research has analysed macro-level investments in ECEC, such as increased public spending and employment, that widen access to childcare. This *top-down* approach generated important findings about childcare programme quality at the country level, measured as access, availability, and levels of spending. This literature also found that a 'Matthew effect' (ME) characterizes childcare use, because higher investments tend to flow to better-off households with children (Pavolini and Van Lancker, 2018). However, the *top-down* approach largely ignores how childcare service users evaluate the quality of services. This study follows recent research on individual preferences and attitudes about SI by analysing user evaluations of childcare services (e.g. Garritzmann and Schwander, 2021).

Existing research on ME in SI includes education and income from work as proxies for ME. However, analyses of individual satisfaction with childcare quality often rely on single-country studies and different measurement approaches, which makes it difficult to generalise about relationships and trends in more than one country. For example, individual satisfaction is often complicated and hard to assess because of how people frame their expectations (Barros and Leal, 2015), adapt to existing

childcare structures (Schmitz, 2020), and have access to information about relevant services (Torquati *et al*., 2011; Stahl *et al*., 2018). This paper addresses this gap by examining whether individuals with higher levels of education and income show higher levels of individual satisfaction with childcare quality across 28 European states. It also explores the significance of country-level indicators - a key explanatory factor in top-down approaches - by asking whether higher public expenditures for childcare lead to higher satisfaction with childcare quality.

We use Eurofound's European Quality of Life Survey (EQLS) 2016 data for the EU (27) and the UK to analyse individual satisfaction with childcare quality among formal childcare users. Among these users, we find a significant negative association between educational level and satisfaction with childcare quality. We also find an indirect association between income and childcare satisfaction through interaction effects between income and gender - females belonging to high-income groups have higher levels of individual satisfaction with childcare quality. Finally, we find significant associations between public expenditure on childcare and user satisfaction. Interestingly, the findings show that individuals belonging to low-childcare expenditure countries have higher levels of satisfaction with childcare quality compared to those living in middle-expenditure countries.

Our analysis has three implications for SI and childcare research. First, the inverse association between education and user satisfaction with childcare quality suggests higher individual expectations, adaptation, and information about childcare services in the countries. Second, the findings show no direct income effect on satisfaction with childcare, indicating that while income matters for childcare accessibility and availability, it is not an important factor for quality assessments. Third, the findings show that childcare expenditures also matter for satisfaction, but the results signal that what matters more is the context of where the money is spent. Overall, the results suggest that existing MEs in childcare use do not necessarily mean more satisfaction with childcare quality. The identified relationships between childcare satisfaction and individual education and public expenditures illustrate that these social investment interventions should be broadly analysed taking both top-down and bottom-up perspectives.

Childcare: Quality, Satisfaction and Matthew Effects

The *top-down* SI literature focuses on objective efforts to improve quality by analysing how social services are financed and delivered. The SI framework is service-oriented, including targeting high-quality childcare services to those from disadvantaged socio-economic backgrounds (Kvist 2015). The focus on high-quality formal childcare services reflects an assumption that these generate significant positive returns in children's skill formation, well-being, and by equalising outcomes for females.

What drives individual satisfaction with childcare quality? Research analysing the relationship between individual childcare satisfaction and individuals' education and income (Ellingsæter *et al*., 2016; Cryer *et al*., 2002; Stahl *et al*., 2018; Torquati *et al*., 2011; Chung and Meuleman, 2017; Torquati *et al*., 2011; Speight *et al*., 2010) offers no agreement whether higher education and income lead to more satisfaction with childcare quality or *vice versa*.

Cryer *et al*. (2002) and Kelesidou *et al*. (2017) find that user satisfaction with childcare is inversely related to the level of education in Greece, i.e., parents with lower educational backgrounds score childcare quality higher than those with higher education, potentially due to the role of information asymmetry between parents. Torquati *et al*.'s (2011) research revealed similar trends showing that highly educated parents tend to have better-quality childcare services when measured objectively, but at the same time were less satisfied with the quality of the services compared with lower-educated parents. Barros and Leal (2015) and Kelesidou *et al*. (2017) found that parents with higher levels of education tended to give lower childcare quality scores, possibly because those parents have higher expectations and are therefore more demanding and critical. Similarly, lower-educated households may perceive childcare services as better than any alternative available, such as in their home environments, thus childcare facilities constitute a relative improvement in quality, leading to higher satisfaction

Nonetheless, a group of other studies find a positive relationship between education and perceived childcare quality. Kulic (2019), studying the EU (27) and the UK, found that parents with higher education have higher satisfaction with most childcare quality dimensions compared to parents with lower education. Speight *et al*. (2010) showed that in England households who experience multiple disadvantages, including low education and low income, perceived childcare as less available, less affordable, and lower quality compared with better-off households.

Previous literature also highlights both positive and negative influences on subjective childcare assessments based on an individual's employment status, work intensity (Fantuzzo et al., 2006; Ellingsæter et al., 2016; Janssen et al. 2021; Stahl et

al., 2018), gender (Ellingsæter et al., 2016; Chung and Meuleman, 2017), migration background (Stahl et al., 2018; Seibel and Hedegaard, 2017 Janssen et al., 2021), cultural values (Seibel and Hedegaard, 2017), household structure (Fantuzzo *et al*., 2006; Janssen *et al*., 2021) and number of children. It also shows that satisfaction with childcare quality is complex to assess because individual social conditioning shapes perceptions about relative needs and desires. Social conditioning shapes individual knowledge about childcare services (Torquati *et al*., 2011; Stahl *et al*., 2018), individual demands (Barros and Leal, 2015) and adaptation to existing service provision (Schmitz, 2020). Others emphasize that differences in individual satisfaction are more practical and related to the limited time spent on the services (Cryer *et al*., 2002) and practical work and care issues (Howe et al., 2013), which frame experiencing childcare as a resiliency factor (Janssen *et al*., 2021).

Despite considerable scholarly and political attention on SI, research shows mixed effects for increased formal childcare resulting in a ME. The ME indicates that government investments flow disproportionately to better-off dual-earner households, who have more resources to secure a childcare slot (Cantillon and Van Lancker, 2013), resulting in a negative access bias for those from worse-off households. Van Lancker (2018) analysed 23 European countries and showed that increased availability of childcare through more social spending mainly benefits higher-income households but does not lead to a reduction in childcare use inequality. Similarly, research by Pavolini and Van Lacker (2018) shows that structural constraints on childcare availability and affordability matter in EU (27) countries and these limit childcare uptake for disadvantaged children. León *et al*. (2019) and Van Lancker (2018) also argue that greater childcare accessibility and coverage do not necessarily indicate more effective SI. For example, greater access in the absence of additional resources can undermine the quality of existing childcare provision and even worsen service quality. In other words, increased public spending on childcare does not automatically mean better access to quality childcare services to disadvantaged households.

There is some evidence that top-down financial investments in childcare matter for individual satisfaction with childcare quality. Financial resources can be invested in additional staff, more qualified staff, and infrastructure (Chung and Meuleman, 2017; Gambaro *et al.,* 2015). Across countries, and over time, Governments differ in their public investments in childcare, in particular because childcare expansion has been vulnerable to budget constraints in times of reduced fiscal capacity (León *et al*., 2019), slowing the increase in the quantity and quality of

state provided or supported childcare provision (Gambaro *et al*., 2015; Akgunduz *et al*., 2013). Lower levels of inequality in childcare use (Van Lancker and Ghysels, 2016) and increased support for childcare provision (Chung and Meuleman, 2017) are associated with an increase in perceived quality. Conversely, reduced subsidies were found to have negative effects on childcare quality (Akgunduz *et al.,* 2013). Conversely, lower levels of inequality in childcare use (Van Lancker and Ghysels, 2016) and increased support for childcare provision (Chung and Meuleman, 2017) are associated with an increase in both childcare provision and its perceived quality.

At a conceptual level, it is useful to identify the main components that shape satisfaction with childcare quality (see Figure 1). National childcare settings include top-down government interventions which are influenced by the SI agenda and directly shape individual perceptions about childcare. These are also influenced by an array of individual-level socio-economic characteristics including income and education. The ME is an outcome of these government interventions in childcare, and it mediates the relationship between structural variables at the country level and user satisfaction at the individual level. Thus conceptually, user satisfaction with childcare quality is shaped by the national childcare settings and mediated by the ME as an intervening variable. From the bottom-up approach, user satisfaction is therefore determined by individual perceptions about childcare.

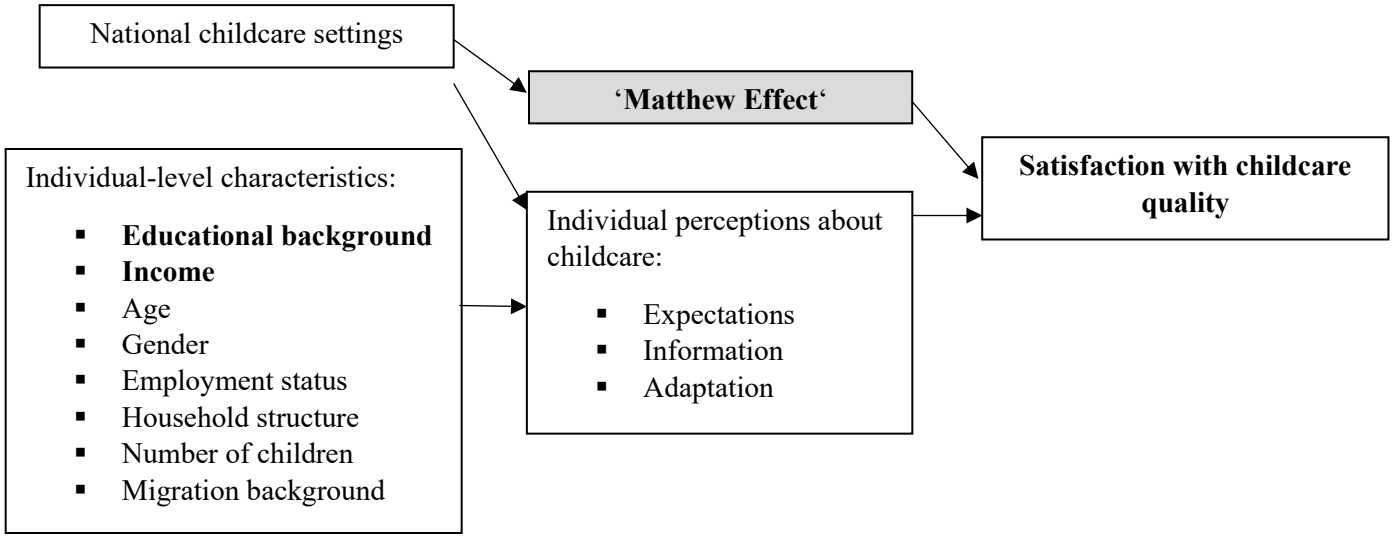

Figure 1. A conceptual model to understand user satisfaction with childcare quality

Building on these associations, and in the context of the aforementioned literature, this paper considers three hypotheses. First, the presence of a ME in childcare use suggests that individuals with higher education experience fewer obstacles towards accessing desired childcare services (Pavolini and Van Lancker, 2018). Studies also indicate that individuals with higher completed education levels report better knowledge of childcare services than those with lower levels due to information asymmetry among the latter (Howe *et al*., 2013). To examine if these MEs impact on satisfaction, this paper considers:

H1: Education is positively associated with satisfaction with childcare quality

Second, the presence of the ME in childcare use also suggests that higher public investments tend to flow to higher-income individuals, who usually have higher social capital and more information about childcare provision, leading to better participation rates in childcare services. Where there are childcare capacity shortages, individuals with higher income have a greater choice when they look for their preferred childcare services. This investment of personal and state resources suggests that higher-income individuals have a better chance of finding childcare services that match their expectations in terms of quality; an assumption tested in hypothesis two:

H2: Individuals living in higher-income households experience higher satisfaction with childcare quality than lower-income ones

Finally, top-down assessments of SI are often measured by looking at public expenditures for service provision. Taking a bottom-up approach, the third hypothesis explores if there is a positive relationship between this expenditure and perceived quality:

H3: Higher public expenditures on childcare lead to higher satisfaction with childcare quality

Data and Methods

Data. We use Eurofound's EQLS wave 4 (2016) survey data in the EU (27) and the UK. The EQLS data captures individual assessments of public services and perceptions of quality in each country, irrespective of individual use and the service provider[1]. In the EQLS survey the term 'public childcare' is understood as *service to the public*, regardless of the service provider (public, private or mixed) (Eurofound, 2019, p. 4), therefore, the data do not distinguish whether childcare facilities are managed by public or private providers. This study focuses on individuals living in households who use formal childcare services, leading to a total sample size of 1,545.

Dependent variable. The EQLS survey provides the opportunity to analyze satisfaction with the childcare quality in each country, allowing the analysis of overall perceptions of childcare quality. The '*Quality of childcare services'* variable consists of a 10-point scale, where 1 indicates very poor quality and 10 very high quality, with an option to indicate 'don't know'. The analysis excludes those indicating 'don't know', leaving a total sample of 1,531.

Independent variables. The key individual-level variables are educational background and income. While many childcare and SI researchers use a binary classification of respondents' education (Kelesidou *et al*., 2017), others rely on a more extensive categorization of education (e.g., Grogan, 2012). This research uses three educational categories as dummies (*lower secondary or below/upper secondary post-secondary/ tertiary*) to capture possible variations in satisfaction with childcare quality. When looking at income, the location of the individual within country-level

[1] The survey asks: *in general, how would you rate the quality of each of the following public services in [COUNTRY]: child care services'.*

quartiles is a useful aggregation that positions their equivalised household income (in purchasing power parity (PPP) terms) within the national income distribution. As the existing SI and ME literature does not provide a clear association with individual income, but indicates that SI-oriented policies disproportionately benefit middle- and higher-income individuals (Pavolini and Van Lacker, 2018), the income variable has been aggregated into a binary variable (*high income/non-high income*)[2]. High-income individuals represent those in the 4th income quartile (top 25%) of the national income distribution, while the non-high-income group is an aggregate variable of the 1-3rd quartiles. Public expenditure on ECEC per pupil/student based on full-time equivalent (FTE) EUR in PPP has been retrieved from Eurostat [3]. The average expenditures on ECEC for 2014-2016 have been selected to avoid a misleading picture of public childcare expenditures in countries based on one year's data. The ECEC expenditures have been categorised in relative terms based on the ranking of average expenditures per child/pupil. Countries have then been clustered into *low*/*medium*/*high* expenditure categories (see Table 1 in the Appendix).

Control variables. The analysis includes variables that control for various socio-economic characteristics. Previous research (Fantuzzo *et al*., 2006; Janssen *et al*., 2021; Stahl *et al*., 2018) indicates that household structure correlates with satisfaction with childcare. Therefore, the models also include a household structure variable (*couple with children/single with children/other types of households*[4]). Recent work also suggests an association between childcare satisfaction and migration status (Janssen *et al*., 2021; Seibel and Hedegaard, 2017; Stahl *et al*., 2018). Therefore, the models also control for respondents' migration background (*1-2nd generation migrant/otherwise*[5]). Furthermore, studies indicate that individual evaluations differ depending on the number of children in the households due to practical childcare considerations (Grogan, 2012), support for public childcare provision (Chung and Meuleman, 2017) and women's labour market participation. Thus, the analysis includes a variable to control for the number of children (*1 child/multiple children/have children outside the household*). Employment status is also included as a variable (*employed/not employed*) as childcare services can allow for desired

[2] To address non-response information on income (226 cases) multiple imputation techniques were applied to predict missing income values.
[3] No statistical information available for Croatia, Belgium, and Greece.
[4] Includes extended families and other types of households (e.g., singles/couples who have small children outside the households.
[5] Those assigned to *otherwise* group are individuals born in the surveyed country (both parents as well).

participation in the labour market (Schmitz, 2020), especially for women (Ellingsæter *et al*., 2016).[6] Finally, the models also control for gender and age.

Methods. The main model uses an OLS regression modelling strategy with a continuous dependent variable. As that variable is left-skewed, this approach preserves most of the information in the data. Alternative models, including reshaping the dependent variable into a binary variable by splitting the variable at the mean or median values, were considered. However, the binary version eliminates the variability of the data and provides less information than the continuous one. Another option, using the logarithm of the dependent variable, was also examined. However, this showed similar trends and results to those obtained with the continuous variable.

A number of interaction effects were examined to investigate some potential indirect associations. Childcare services matter from a gender perspective (Kvist 2015), as they increase maternal employment, leading to improved gender equality (Van Lancker and Ghysels, 2016). Thus, interaction effects between gender and income were included in the regression analysis. Studies investigating the role of education often emphasize that individuals with low education are impacted most during childbearing years due to knowledge-based economy favouring highly skilled individuals (Kvist 2015). To investigate this, interaction effects were included between the number of children and education. Previous studies also found negative associations between migration background and lower childcare quality (e.g., Stahl *et al*., 2018; Janssen *et al*., 2021) with such trends often explained by different cultural values of migrants (Seibel and Hedegaard, 2017). Therefore, interaction effects were tested between migration background and public expenditures on the ECEC per pupil/student. Lastly, as public expenditure levels have been found to particularly matter for disadvantaged households (Gambaro *et al*., 2015), interaction effects are included for education and public expenditure. There were attempts to examine other interaction effects[7], but none were found to be statistically significant.

[6] 'Other' includes unemployed, student, homemaker, retired, and sick or disabled.

[7] Interaction effects were also tested between education and income, gender and employment status, household structure and education but provided no statistically significant results or impact on the core findings.

Findings

Descriptive findings

The descriptive findings provide a picture of formal childcare service users' satisfaction across countries. Figure 2 shows average satisfaction scores with childcare quality in each country. Overall, the average score is 7.3 (out of 10) across all formal childcare users. Results indicate that average satisfaction scores are highest in Malta, Sweden, Luxembourg, Finland, and the Netherlands, with scores around 8 (out of 10). Average satisfaction scores are lowest in Bulgaria, Italy, Ireland, and Romania, with scores around 6.

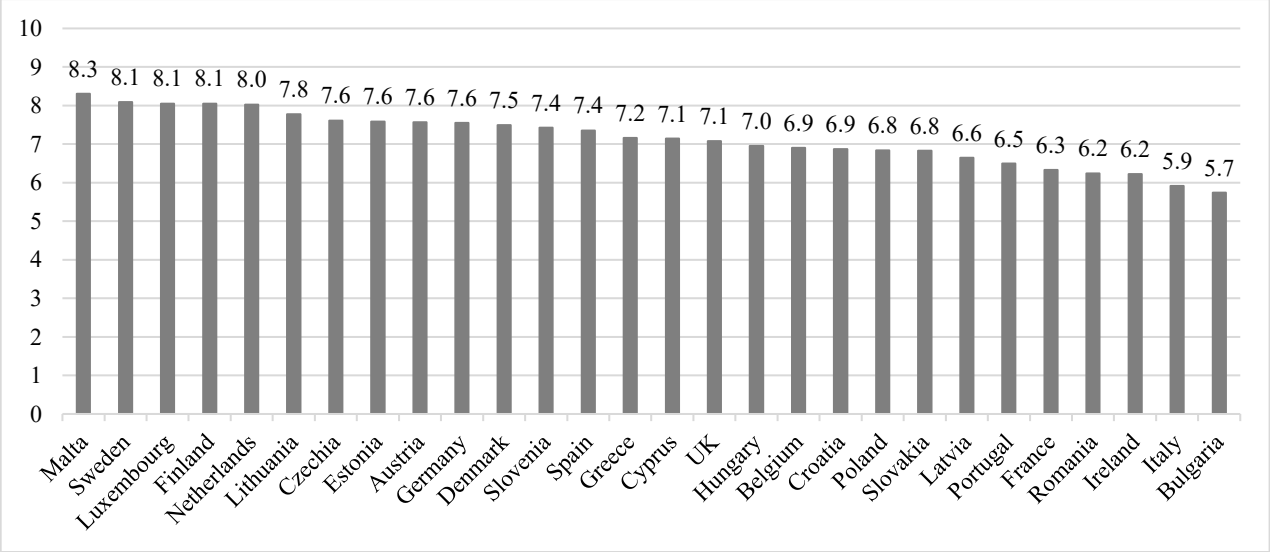

Figure 2. Average satisfaction with childcare quality among formal childcare users (EQLS, 2016, weighted, n=1531). **Note**: 10-point scale, where 1 is very poor quality, and 10 is very high quality.

Table 1 presents the average satisfaction scores by selected dependent, independent and control variables. It shows a negative relationship between education and satisfaction, but no relationship between satisfaction and income. Average satisfaction levels are found to be above average in countries with high levels of public expenditure and lower in those with low and medium expenditure levels. They are also above average for single parents, those in households with multiple children and for individuals with a migration background; findings which suggest that some individuals with a risk of socio-economic disadvantage record higher satisfaction levels. The data also show no relationship between gender or employment status with childcare satisfaction.

Except for income, gender and employment status, all other variable p-values indicate a relationship between satisfaction with childcare quality and the selected variables. While this data provides initial insights about user satisfaction with public childcare, the factors influencing these relationships require further exploration by applying regression models to simultaneously control for a range of other factors and identify any underlying relationships.

Table 1. Descriptive statistics of selected variables, EU (27) and the UK, % and average

Variables	Average Satisfaction	%
Satisfaction with childcare quality (scale 1-10)	7.3	100
Independent and Control variables		
Education		
Lower secondary or below	7.7*	15
Upper secondary or post-secondary	7.3*	40
Tertiary	7.2*	45
Income		
High income	7.2	27
Non-high income[a]	7.4	73
Public expenditure on ECEC per pupil/student		
Low	7.1**	24
Medium	6.8**	28
High	7.7**	48
Control variables		
Gender		
Male	7.3	48
Female	7.4	52
Employment status		
Employed	7.3	83
Not employed[b]	7.3	17
Household structure		
Couple with children	7.3**	76
Single with children	7.8**	6
Other[c]	7.1**	18
Number of children		
1 child in hhld	7.2**	27
Multiple children in hhld	7.5**	57
Have children outside hhld	6.8**	16
Migration background		
1-2nd generation migrant	7.6**	24
Otherwise	7.2**	76
N		1531

Notes: significant at * p < 0.10 level, ** p < 0.05 level, *** p < 0.01 level, **** p < 0.001 level; [a]1-3rd income quartile; [b]Unemployed, student, retired, homemaker, sick or disabled, other; [c] Extended families, single people or those who live in couples and have children outside the household.

Factors that shape satisfaction with childcare quality

This study seeks to answer whether higher education, income and public expenditures lead to higher satisfaction with childcare quality. Table 2 presents the regression results. Results for Model 1 include individual-level controls only to test the first (H1) and second (H2) hypotheses. Model 2 adds a categorical variable of public expenditures on ECEC to test the third hypothesis (H3). A number of interaction effects are tested: between gender and income (Model 3), between the number of children in the household and educational background (Model 4), migration background and public expenditures on the ECEC (Model 5) and educational background and public expenditures on the ECEC (Model 6). Considering model fit, Models 1-6 are statistically significant and explain between 4-12% of the variation in satisfaction with childcare quality, with the explanatory power increasing with each model. Small R^2 values are not uncommon in satisfaction studies and are unsurprising given the complexity of the factors that shape user satisfaction (see Kulic, 2019). Overall, F-tests, AIC and BIC values also indicate that model iterations better explain the variation of the dependent variable[8].

The first hypothesis examines the role of educational background in user satisfaction. Across all models, the results show that education matters for childcare users' satisfaction, with individuals holding higher education being less satisfied with childcare quality and *vice versa*. Therefore, we do not find evidence to support the first hypothesis (H1); in fact, we find that education is negatively associated with childcare satisfaction.

The second hypothesis looks at the role of income in user satisfaction. We find no significant association between belonging to a higher income group and higher satisfaction with childcare quality and *vice versa*. Thus, we do not find evidence to support the second hypothesis (H2)

The third hypothesis tests whether public childcare expenditures on ECEC help to explain user satisfaction with childcare quality. Across all models, the results signal a positive association between low and high expenditure countries and higher satisfaction with childcare quality when compared with medium expenditure

[8] Robustness checks shown similar results using a log-transformed version of the dependent variable and Poisson regression.

countries. Therefore, the third hypothesis (H3) cannot be confirmed; public expenditure does influence satisfaction, but across low, medium and high level expenditure countries, this takes a U-shape. As for other individual-level variables, gender and employment did not reveal any statistically significant pattern. We found a negative relationship between age and satisfaction with childcare quality (Models 2-6), but as people get older, the effect reduces. Regarding household structure, compared to couples with children, we find no significant effect for other types of households, except for single-parent households, where we find a strong positive relationship between satisfaction with childcare quality. Similarly, we find that belonging to households with multiple children or being a 1-2nd generation migrant is associated with higher levels of satisfaction with childcare quality.

When interaction effects between gender and income were added (see Models 3-6), results indicate that compared to low-income males, high-income females have higher satisfaction with childcare quality. This suggests that, indirectly, rather than directly, gender and income matter for childcare quality perceptions. Interestingly, individuals in larger households with lower education are associated with lower childcare satisfaction (see Models 4-6). Migration background and public expenditures on ECEC also interact with each other (see Models 5-6). Compared to those with a non-migrant background in medium expenditure countries, 1-2nd generation migrants in high expenditure countries experience lower satisfaction with childcare quality. Nonetheless, we observe no significant differences in satisfaction among 1-2nd generation migrants in low-expenditure countries. Finally, interaction terms between education and public expenditures on ECEC (see Model 6) show that individuals with low education in medium expenditure countries perceive childcare quality to be higher than more educated individuals living in countries with lower public expenditure on childcare. The results of these interactions indicate that it is important to look not only at childcare expenditure levels, but also at the individual and household characteristics of childcare users.

Table 2. Determinants of user satisfaction with childcare quality, OLS models

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Education (ref=lower secondary or below)						
Upper secondary or post-secondary	-0.517***	-0.546***	-0.545***	-1.072****	-1.037****	-0.705**
Tertiary	-0.656****	-0.697****	-0.702****	-1.390****	-1.363****	-1.201****
High income[a]	0.082	0.216	-0.118	-0.117	-0.145	-0.157
Female	0.088	0.037	-0.151	-0.165	-0.177	-0.181
Age	-0.031	-0.083*	-0.087**	-0.100**	-0.106**	-0.098**
Age-squared	0.000	0.001*	0.001*	0.001**	0.001**	0.001**
Not employed[b]	-0.105	-0.048	-0.033	-0.035	-0.026	-0.026
Household structure (ref=couple with children)						
Single with children	0.414**	0.382**	0.397**	0.404**	0.393**	0.415**
Other[c]	-0.092	-0.044	-0.059	-0.069	-0.091	-0.056
Number of children (ref=multiple children in hhld)						
1 child in hhld	-0.349***	-0.381***	-0.388***	-1.259****	-1.247****	-1.201****
Have children outside hhld	-0.794****	-0.824****	-0.814****	-1.918****	-1.883****	-1.794****
1-2nd generation migrant	0.311**	0.272**	0.272**	0.221*	0.774***	0.810***
Public expenditure on ECEC per pupil/student (ref=medium)						
Low		0.318*	0.303*	0.306*	0.406**	1.460****
High		0.942****	0.950****	0.991****	1.161****	1.159****
Gender x income (ref=man # non-high income)						
Female # high income			0.666***	0.649**	0.656**	0.665***
Number of children x education (ref=multiple children in hhld # lower secondary or below)						
1 child in hhld # upper secondary or post-secondary				0.700**	0.676*	0.639*
1 child in hhld # tertiary				1.267****	1.255****	1.211****
Have children outside hhld # upper secondary or post-secondary				1.322****	1.292***	1.192***
Have children outside hhld # tertiary				1.449***	1.424***	1.345***
Migration background x public expenditures on ECEC (ref=otherwise# medium)						
1-2nd generation migrant # low					-0.537	-0.694
1-2nd generation migrant # high					-0.778**	-0.794**
Education x public expenditures on ECEC (ref=lower secondary or below # medium)						
Upper secondary or post-secondary # low						-1.335***
Upper secondary or post-secondary # high						-0.102
Tertiary # low						-1.006**
Tertiary # high						0.081
_cons	8.393****	9.093****	9.469****	10.280****	10.311****	9.970****
Observations	1531	1431	1431	1431	1431	1431
R^2	0.040	0.086	0.091	0.107	0.112	0.119
AIC	6333.6	5865.1	5857.9	5840.8	5837.3	5833.8

BIC	6402.9	5944.1	5942.2	5946.1	5953.1	5970.7
F	3.674	7.704	7.442	7.873	7.446	6.964

Notes: significant at * p < 0.10 level, ** p < 0.05 level, *** p < 0.01 level, **** p < 0.001; [a] Top income quartile; [b] Not employed = unemployed, student, retired, homemaker, sick or disabled, other; [c] Extended families, single people or those who live in couples and have children outside the household.

Discussion

Taken together, what does the evidence presented mean in the context of ME in childcare? Given their presence in childcare use, users with higher levels of education and income might be expected to face fewer financial and practical obstacles to using their preferred childcare services. However, we find that there is an unexpected inverse relationship between belonging to a higher education group and lower satisfaction with childcare quality. We also find no association between income and satisfaction with childcare quality; although, income and gender matter in indirect ways. The absence of significant variation in satisfaction with childcare quality based on individual income might indicate that while income matters for childcare accessibility and availability, the quality aspect becomes less important once individuals start using childcare services.

Several factors are known to play a role in explaining subjective assessments of satisfaction with childcare quality, namely the role of expectations, adaptation, and information asymmetry. The fact that there is no direct income effect makes it more about knowledge and expectations, i.e., lower educated individuals may be less aware about what constitutes high childcare quality such as the latest trends in child development, compared to more educated formal childcare users. Some previous studies indicate that although more educated individuals tend to attend better quality childcare services (Stahl *et al*., 2018), they are more demanding due to better available information about existing childcare structures (Barros and Leal, 2015). They also tend to take a more active interest in childcare delivery (Howe *et al*., 2013) and thus are potentially more discerning when it comes to the evaluation of childcare quality (Torquati *et al*., 2011). The results could indicate an effect of higher expectations and adaptation by respondents with higher education. In line with the findings of Grogan (2012), one explanation might be that individuals with higher education are more likely to include quality considerations when choosing childcare services and therefore are more demanding and critical.

Another possible factor in differences in satisfaction with childcare quality may be how childcare arrangements are perceived by individuals with lower education. They may see childcare as a practical arrangement to facilitate employment and other activities, resulting in lower expectations. It is known that satisfaction with childcare can also be illustrated through satisfaction as a form of relief from care duties. Several factors are known to be associated with lower expectations concerning childcare, namely constraints related to employment and childcare flexibility. Such results could indicate that individuals with lower education have less flexibility in choosing care, manifesting in lower expectations and acceptance of available childcare services. In line with Cryer *et al*. (2002), a further explanation of higher childcare quality scores by lower-educated individuals might be an information asymmetry, stemming from not having enough free time to investigate childcare services, and also because they are often limited by childcare choices in their local area.

Does public expenditure on childcare matter for satisfaction with childcare quality? Our findings suggest that it matters, though the relationship is U-shaped. Individuals in countries with low childcare expenditures are paradoxically more satisfied than those living in middle-expenditure countries. Low-expenditure countries are mainly Central and Eastern European (CEE) countries, such as Poland, Slovakia, Czechia, Lithuania, Romania and others (UK, Cyprus, Portugal). Nonetheless, childcare quality satisfaction in high-expenditure countries is significantly higher compared with middle-expenditure countries. This finding may be because individuals in middle-expenditure countries are informed about countries that provide better-quality childcare services, impacting their perceptions. On the other hand, higher satisfaction in high-expenditure countries might indicate enhanced perceptions of quality because of comparison with medium-expenditure countries. Thus, one explanation for these findings might be that as public expenditures on SI initiatives increase, so do people's expectations. Several theories have been used to explain this pattern. Some scholars suggest a learning model, indicating that despite the same economic position, individuals have different preferences for optimal levels of welfare redistribution due to their past experiences and social conditioning. Others interpret such processes as a 'hedonic treadmill' (Schmitz, 2020), indicating that individuals adjust to changes very quickly, leading to temporal effects on satisfaction. The theory suggests that our aspirations rise with wealth and income as we adjust to new circumstances, which are driven by upward comparison with socially similar others. Therefore, a probable explanation is that individuals in middle-expenditure countries

have higher expectations than people in low-expenditure countries, as their perceptions of quality are influenced by countries with higher SI efforts.

In terms of the other factors examined, although there is no direct association between gender and satisfaction, interaction effects signal an indirect role for gender and income. This is in line with Garritzmann and Schwander (2021), who state that gender matters in the SI interventions, but indirectly. Results are not surprising given the presence of the ME. The analysis also shows variations in satisfaction between different household structures. Even though couples with small children usually have greater access to childcare services, higher satisfaction among single parents may reflect more practical reasons, particularly as they may experience childcare services as a resilience factor (Janssen *et al*., 2021). Lower satisfaction among other types of households might indicate incomplete information about childcare services due to limited time spent in the facilities (Cryer *et al*., 2002). Lower satisfaction among individuals with one child and those who have children outside their household, compared with households with multiple children, potentially reflects the latter's greater experience of using formal childcare services and how their expectations have been shaped by that experience. Lastly, the findings show a positive association among individuals with a migrant background and satisfaction with childcare quality, contrasting with previous research by Stahl *et al*. (2018) and Janssen *et al*. (2021), who found the opposite.

Conclusions

In this study, we contribute to the SI and ME literature by showing that individual educational background matters for user satisfaction, with a negative relationship to childcare quality. Nonetheless, we find no direct role for income when looking at childcare satisfaction. Despite the advantage of better-off individuals with small children due to the ME in childcare use, there is an inverse relationship between higher education and satisfaction among childcare users. These results seem to be in line with the theoretical literature on expectations, adaptation, and information asymmetry. A possible explanation is that more educated individuals can take a more active interest in quality aspects and thus are more demanding. On the other hand, less educated individuals may be more satisfied due to lower expectations and pragmatic judgements.

SI expenditures on childcare also matter for satisfaction, but what matters more is the context of where the money is spent when explaining satisfaction with childcare quality. Interestingly, individuals in countries with low childcare expenditure are more satisfied than those in middle-expenditure countries. We argue that the role of childcare expenditures in middle-expenditure countries is likely to be conditioned by the learning model and increased expectations, influenced by countries with higher SI levels.

Overall, by taking a bottom-up approach to SI interventions, our results provide further insights into the role of socio-economic dimensions on satisfaction with childcare quality. Further research should provide more insights into satisfaction with childcare quality and the role of other individual and country-level indicators. Most importantly, future research needs to consider ME in childcare more broadly.

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Appendix

Table 1. Public expenditure on ECEC per pupil/student (2014-2016 average)

Countries	EUR in PPP	Aggregation
Belgium	N/A	
Greece	N/A	N/A
Croatia	N/A	
Luxembourg	13921	
Sweden	10472	
Finland	8236	
Denmark	7548	High
Germany	6728	
Austria	6531	
Ireland	5778	
Netherlands	5709	
France	5469	
Slovenia	5055	
Malta	4971	
Hungary	4763	
Italy	4365	Medium
Estonia	4154	
Bulgaria	4078	
Spain	3973	
Latvia	3919	
Poland	3764	
Slovakia	3722	
Czechia	3676	
Portugal	3490	Low
Lithuania	3466	
UK	3316	
Cyprus	2413	
Romania	2000	

Source: Eurostat [educ_uoe_fine09]