Caught by Surprise: The Adaptation of Parental Expectations after Unexpected Ability Track Placement

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14 April 2021

Abstract

The study examines the adaptation of educational expectations. It focuses on the expectations that parents have of their children during the transition from primary to secondary school in Germany. During this transition, students are placed into different ability tracks. It is examined whether parents react to this information about their child's achievement by adjusting their educational expectations or whether their expectations are nonreactive to the achievement information conveyed by track placement. It is hypothesized that parents are more likely to adapt their expectations regarding final educational attainment if their child's track placement is not consistent with the expectations that they held before the track placement was known. Furthermore, SES differences in this adjustment process are expected as parents of different social status have different orientations towards achievement information. The study uses data from the National Educational Panel Study (NEPS), Starting Cohort 2 and focuses on the years between the third grade of primary school and fifth grade, which is the first year of secondary school. This means that students and parents can be followed across the moment in the academic career at which track placement happens. Furthermore, the variations in the tracking decisions across the German federal states is used to examine how the adaptation of parents' expectations is affected based on how much influence parents have on track placement. Two-way fixed effect models are employed to model the change of expectations between the two time points in the data. The results show that low-SES parents do adjust their expectations more strongly downward when their children receive a lower track placement than expected; however, high-SES parents maintain their high expectations even in light of such negative achievement information. High- and low-SES parents do not significantly differ in their expectation adjustment if their children's track placement is higher than their previous expectations.

1 Introduction

Inequality of opportunity (IEO) is a concern in most societies: children from lower social origin reach lower levels of education than their more advantaged peers. A large body of research has investigated how this educational inequality is related to the structure of national educational systems. Thereby, educational stratification (i.e., the separation of students into different tracks in secondary education) as been singled out as an important characteristic that contributes to inequality (Bol and Van de Werfhorst, 2013; Brunello and Checchi, 2007; Hanushek and Wößmann, 2006).

However, while the association is well-studied, the mechanisms by which tracking contributes to IEO are less well-known. Concerning the process of track placement itself, a considerable amount of theory building and research have taken place. This research finds that track placement is often socially selective, and as a consequence, students with a low socioeconomic status (SES) more often attend less-demanding or vocational tracks while high-SES students are overrepresented in pre-academic tracks (Buchmann and Park, 2009; Breen et al., 2014; Triventi et al., 2019). Less is known about the consequences of track placement and how those contribute to social inequality. If students of different social origin are placed in the same track but this track placement does affect them in different ways, this also contributes to educational inequality in addition to social selection in track placement itself. In this paper, I focus on these consequences of track placement and in particular on how track placement affects educational expectations of different social groups.

In countries where educational tracking is utilized, track placement is a specific point in academic careers at which students and their families receive important information about achievement that might affect expectations for the further school trajectory (Karlson, 2015). At the same time, expectations are a potentially important mechanism behind educational inequality as they have been shown to influence later educational outcomes (Domina et al., 2011; Alexander et al., 1994; Sewell et al., 1970, 2004; Schindler and Lörz, 2012; Triventi et al., 2019). Educational expectations are also central to theories of status attainment (Sewell et al., 1969, 1970, 2004). These theories distinguish students' own expectations and those of significant others (i.e., parents). Both, expectations of parents and students

are formed based on information about academic achievement and additionally stratified by socioeconomic status. Previous research on the topic has mostly examined adolescents in high school and has focused on the expectations formed by the students themselves (Bozick et al., 2010; Karlson, 2015, 2019; Rosenbaum, 2001, 1998; Alexander et al., 1994). However, when tracking decisions occur early, the expectations of parents are likely to play a strong role in children's outcomes as these expectations influence students' own expectations but also directly affect decision-making regarding education (Schneider, 2011). As I am interested in early tracking processes, I focus on parents' expectations in this paper.

The adaptation or persistence of expectations in reaction to track placement is potentially an important mechanism of inequality of opportunity. If low-SES students not only are more at risk for lower track placement but their parents also react differently to this placement than high-SES parents, tracking not only is a sorting mechanism that leads to social stratification but also has the potential to further exacerbate this stratification through its different consequences for students from different socioeconomic groups. For example, if low- and high-SES parents receive the same negative information about their child's achievement, i. e., a low track placement, but low-SES parents adjust their expectations more strongly downward than high-SES parents when they face this low track placement, then these low expectations can have further consequences for the future of these children. In line with this argument, Buchholz and Schier (2015) show that low SES students less often upgrade their secondary school diplomas at a later point in the educational career by taking alternative routes to higher education than high SES students. If low-SES parents, however, reacted less strongly than their high-SES counterparts to the same negative achievement information, inequality could be alleviated.¹ This shows that the effect of tracking on inequality depends on the direction and strength of the expectation adjustments made by families of different SES. Therefore, parents' reactions to track placement are processes worth studying.

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¹This said, it needs to be questioned if keeping high expectations is always the best strategy concerning future educational outcomes. Overly high expectations could lead to unrealistic educational plans and decisions that lead to disappointment. Nevertheless, because of the typically high correlation between high expectations and favorable educational outcomes, I decide to conceptualize expectation adaptation in this way.

Understanding the consequences of tracking is especially crucial in countries that implement early between-school tracking such as Germany. In this country, track placement most commonly occurs at the age of ten and determines the further options that are available to students throughout the entirety of their educational trajectories. The previous research on expectation formation and tracking, however, has mostly focused on older secondary school students or on less-strict forms of tracking such as course-by-course ability grouping (Karlson, 2015; Bozick et al., 2010; Zimmermann, 2020). I contribute to the literature by studying an early tracking decision and – as mentioned above – by focusing on the expectations of parents (i. e., significant others). I study a recent student cohort from Germany and evaluate whether there are SES differences in the extent to which parents adjust their expectations for their children’s academic careers after their track placement. Specifically, I am interested in the extent to which parents revise their expectations when track placement reveals unexpected information about their children’s achievement, i. e., when their children’s track placement is not consistent with their previously held expectations. Therefore, I distinguish between “positive surprises”, namely, instances in which children’s track placement exceeds expectations and “negative surprises”, namely, cases in which children’s track placement falls short of expectations. Finally, the German federal states vary in terms of the degree to which parents are involved in decision-making about track placement. As this potentially affects the adjustment of expectations, I also examine whether reactions to track placement vary across the federal states. I use data from the National Educational Panel Study (NEPS) that begins to follow students in primary school and continues across their track placement into secondary school (Blossfeld and von Maurice, 2011).

The results indicate that low-SES parents lower their expectations more strongly when the track placement of their children is unexpectedly low; however, they increase their expectations at the same rate as high-SES parents when their children receive unexpectedly high track placements. Therefore, track placement exacerbates social inequalities through expectations and has the potential to increase inequality of opportunity in terms of educational outcomes.

2 Theoretical Framework

2.1 The Role of (Parental) Expectations for Status Attainment

This study focuses on educational expectations, which are defined as realistic aspirations or plans as opposed to idealistic aspirations or wishes. Expectations have been found to be lower than unconstrained aspirations on average, and they are more constrained by institutional barriers (Kerckhoff, 1976; Finger, 2016).

In the Wisconsin model of status attainment, educational expectations play a central role in explaining educational and occupational attainment (Sewell et al., 1969, 1970, 2004). Expectations are stratified based on socioeconomic status, and in addition they are important for educational attainment.² This makes expectations an important factor that contributes to inequality of opportunity.

The status attainment tradition acknowledges the role of both students' own expectations and those of their significant others, especially their parents (Sewell et al., 1970). According to the Wisconsin model, both types of expectations are formed by influences of the socioeconomic environment and affected by information about the early academic achievement of children. The studies that investigate the relationship between academic achievement and expectations have focused on the question of how students adapt their expectations to new information about academic achievement and how this process differs across socioeconomic groups (Karlson, 2015, 2019; Andrew and Hauser, 2011). Less emphasis has been placed on the process by which *parents* form and adapt their expectations concerning the academic careers of their children (Stocke, 2010). However, parental expectations play an important role in educational inequality. First, according to the Wisconsin model, parental expectations affect students' expectations and those in turn have been shown to be consequential for educational outcomes (Sewell et al., 1969, 1970, 2004). Some studies indicate that significant others such as parents exert less influence on student expectations in strongly differentiated educational systems than in more comprehensive systems,

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²Overall, students' own expectations have increased during recent decades, leading some authors to hypothesize that they have become decoupled from actual educational attainment (Rosenbaum, 2001; Reynolds et al., 2006; Baird et al., 2008). However, educational attainment has also increased, making these increased expectations optimistic but not completely unrealistic (Morgan, 1998; Piquart and Ebeling, 2020).

as expectations are strongly determined by track placement (Buchmann and Dalton, 2002; Buchmann and Park, 2009; Yuchtman and Samuel, 1975; Parker et al., 2016). However, studies conducted in the German context have repeatedly shown that parental expectations are important determinants of student expectations both in primary and in secondary school (Gölz and Wohlkinger, 2019; Zimmermann, 2020, 2018). Second, especially early in students’ academic careers when students themselves cannot yet oversee their educational futures, parental expectations play an important direct role in education-related decision-making and other educational outcomes net of their influence on student expectations (Gölz and Wohlkinger, 2019; Schneider, 2011).

A few studies have directly examined parental expectations for primary school students in the German context. They show that these expectations are affected by school grades and that they are also stratified based on socioeconomic status (Kurz and Paulus, 2008; Schauenberg, 2008; Ditton et al., 2005; Stocke, 2010). However, none of these studies have covered the period in students’ academic careers during which educational stratification occurs – which is in focus in this study.

2.2 Adaptation or Stability

As outline in the previous section, it is well established that SES and ability are important determinants of expectations. However, whether expectations stabilize early and are mostly determined by social environments or whether families act as rational agents who continuously update their expectations when new information regarding achievement becomes available is still contested (Gambetta, 1987; Breen, 1999; Andrew and Hauser, 2011; Zimmermann, 2020).

In the Wisconsin model, expectations of both parents and children are viewed as fairly stable constructs, being formed mostly during early childhood (Sewell and Shah, 1968; Sewell et al., 1969; Bozick et al., 2010; Sewell et al., 2004; Haller and Portes, 1973). Educational expectations are stratified based on SES, but they do not change much during students’ academic careers.

A contrasting theory of Bayesian learning assumes that expectations are updated continuously throughout students' academic careers as new information becomes available (Morgan, 2005). While this theory and related empirical research mostly investigate student expectations, most of the arguments also extend to the expectations of parents in the role of significant others.

According to Bayesian learning, SES-related differences in expectations can arise due to differing prior beliefs (Breen, 1999). Beattie (2002) shows that membership in a social group affects rational judgments about decision-making in education. Breen (1999) emphasizes that different SES groups can hold different (false) beliefs about education. He argues that low-SES families overemphasize the role of innate ability in educational success, while high-SES families place more emphasis on the role of effort. If parents believe that educational success is mostly a consequence of a stable construct such as innate ability that cannot be influenced, they will attach little importance to effort, which is a trait that can be influenced e. g., by parenting strategies. According to this reasoning, low-SES families are more likely than high-SES families to adjust their expectations downward, as they believe that low achievement cannot be mitigated by increased effort. Subsequently, their negative expectations might be confirmed by more negative outcomes resulting from a lack of effort. High-SES families are more likely to maintain their high expectations when they receive negative achievement information, as they believe that increased effort can still lead to favorable outcomes.

In a direct comparison between the Wisconsin model and Bayesian learning theories, Zimmermann (2020) shows that the expectation development of German students is compatible with both theories, as he finds that both structural social influences and rational calculations are important in the context of expectations.

This argument is also congruent with other perspectives on social class based socialization such as Lareau's research on concerted cultivation (Lareau, 2002, 2011) in which she convincingly shows that working class families place a stronger emphasis on natural growth for their children, intervening less in their development and also demanding less accommodations for their children from schools. This leads them eventually to accepting

school decisions to a larger extent than middle class families who more quickly challenge unfavorable outcomes of their children. Also Gottfredson (2002) shows how students of different SES make compromises and adjust expectations when they face barriers in their social environment or negative achievement information. These adjustments can, however, also be overwritten if significant others keep high expectations for students.

Finally, empirical research concerning students' own expectations has shown that students react to information about achievement; however, a drastic exogenous shock is necessary to change their expectations (Andrew and Hauser, 2011; Carolan, 2017). In this paper, I study track placement, which can be regarded as such a drastic exogenous shock (Karlson, 2015) and extend the research by focusing on parental expectations. Additionally, I do explore the interplay between the reaction to track placement other achievement information conveyed by schools in Appendix D.

2.3 Track Placement and Parental Expectations

In educational systems where ability tracking is in place, track placement is a particularly strong indicator of achievement. Students' allocation to various tracks makes their previous achievement extremely salient to their parents, and it is also consequential for the future education of students. It has been shown that high school students adjust their expectations in reaction to their track placement and that this adjustment is stronger if their track placement reveals new information about their achievement (Karlson, 2015). In countries that implement early tracking such as Germany, tracking occurs at a time during which educational decisions are not solely made by the students; rather, to a large extent, educational decisions are made by these students' parents as described above. For this reason, as discussed in detail above, I focus on parents' expectations when studying adaptation of expectations after early track placement.

Track placement itself does not necessarily trigger a change in expectations. If the allocated track is consistent with the expectations that parents held prior to their children's track placement, there is no reason to adapt their expectations. However, if there is a

discrepancy between expectations, and the track to which a child is allocated (i.e., track placement reveals new information), expectations are more likely to change.

H1(a): *Parents are more likely to change their expectations if the track placement of their child is not consistent with their previous expectations than if their expectations and the track placement of their child are aligned.*

In addition, the process of updating expectations can differ across socioeconomic groups if the beliefs that parents hold about education also differ across SES groups (Breen, 1999). There are different theoretical ideas on whether low- or high-SES families react more strongly to new information on achievement. On the one hand, low-SES parents might adjust their expectations more strongly than high-SES parents do in response to external influences in general; thus, they may also adjust their expectations more strongly than high-SES parents in response to new information about achievement (Karlson, 2019). Additionally, as mentioned above, the belief of low-SES parents that innate ability is more important than effort can contribute to a stronger adaptation of expectations. However, it has also been argued that low-SES families exhibit a weaker reaction to information about achievement than high-SES families and that as a consequence they form less-realistic expectations (Alexander et al., 1994). One reason for this could be that low-SES parents have less knowledge of the educational system; therefore, these parents might be less aware of the barriers they are facing (Erikson and Jonsson, 1996; Forster and Van de Werfhorst, 2020). Similarly, low SES families have been argued to experience more myopia and find it harder to oversee long-term educational trajectories than high SES families (Lucas, 2001). These processes might decouple parents' expectations from the achievement information provided by schools and make them less reactive.

Only few studies have investigated the SES differences in the adaptation of parental expectations. In the German context, Stocke (2010) finds that low-SES parents of primary school students react more strongly to school grades than high-SES parents do. However, there is more evidence, concerning students' own expectations that can also give insights in the processes faced by parents. Here, Bozick et al. (2010) and Kao and Tienda (1998)

find that the stability of expectations indeed differs based on SES. Specifically, the expectations of low-SES students fluctuate more strongly throughout their academic careers, while high-SES students hold stable, high expectations from early on in their academic careers. Similarly, Morgan (2005) concludes that expectations of low-SES students are less consistent, as they receive more mixed signals about their prospects from their environment than high-SES students. Based on this instability, it might be concluded that low-SES families adjust their expectations more strongly when new achievement information becomes available, while high-SES families adhere to a college-going habitus that they put into action regardless of the type of information that they receive about achievement (Grodsky and Riegle-Crumb, 2010). Additionally, Karlson (2019) does not find evidence that low-SES students react less strongly to achievement information. As significant others underly largely the same processes here as students themselves, I hypothesize the following:

H1(b): *Low-SES parents are more likely than high-SES parents to change their expectations if the track placement of their child does not match their previous expectations.*

Following previous research on the topic, H1(a) and H1(b) only examine whether or not track placement is consistent with expectations. However, it is possible that SES differences vary based on whether an unexpected track placement is a positive or a negative “surprise”.³ This distinction is also reminiscent of the distinction between gains and losses in prospect theory (Kahneman and Tversky, 1979; Tversky and Kahneman, 1992): different reactions can be expected depending on whether a decision at hand is related to gains or losses relative to the current (social) position. So, differences in how parents of different SES evaluate track placement might be related to different levels of risk aversion. I summarize my theoretical expectations corresponding to these different reactions in Table 1.

Track placement is considered a positive surprise if the allocated track is higher than the track corresponding to the educational expectations that parents held for their children

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³I refer to inconsistent track placements as “surprises”, as they reveal unexpected information to parents. However, it should be noted that track placement does not always come as a surprise to parents. Parents are usually involved in the decision-making process; thus, they can slowly adjust their beliefs and expectations to the reality of track placement. Nevertheless, in terms of the expectations that parents held before the track placement process started, track placement can be characterized as an unexpected or surprising outcome if it does not match these previously held expectations.

Table 1: Overview of Hypotheses for Expectation Change

		TRACK PLACEMENT IN SECONDARY SCHOOL	
		Low	High
PRIOR EXPECTATIONS	Low	no change	low SES: weak adjustment
			high SES: strong adjustment
	High	low SES: strong adjustment	no change
		high SES: weak adjustment	

prior to track placement. Track placement is a negative surprise if children are placed in a track that is lower than the track corresponding to these previously held expectations. Parents do not experience a surprise if their children's track placement and their previous expectations are either both low or both high; in this situation, expectations and track placement are consistent with one another. In this case, I do not expect that parents will change their expectations. When examining positive and negative surprises separately, it can be concluded that it is likely that positive surprises will lead to an upward adjustment in expectations, while negative surprises will trigger downward adjustments.

H2(a): *Parents adjust their expectations upward when they encounter a positive surprise and downward when they encounter a negative surprise.*

Additionally, different SES groups might react differently to positive and negative surprises. Due to their strong college-going habitus (Grodsky and Riegle-Crumb, 2010) and their emphases on effort (Breen, 1999), high-SES parents are generally expected to maintain high expectations, even in the presence of negative achievement information while low-SES parents adjust their expectations downward more strongly. Low-SES parents believe that a disappointing track placement signals a lack of talent that cannot be influenced by effort. In contrast, high-SES parents do not adjust their expectations as much, as they believe that increased effort will eventually lead to desirable outcomes despite low track placement (Breen, 1999).

On the other hand, low-SES parents react less strongly to positive information, as they face more constraints (e.g., financial constraints) in regard to facilitating their children’s potential (Karlson, 2019) and, overall, are more risk averse than high-SES parents (Breen and Goldthorpe, 1997; Breen et al., 2014). High-SES parents rarely hold low expectations, as most of them take high educational outcomes for granted. However, if these parents do hold low expectations prior to track placement, they will easily adjust their expectations upward if their children’s track placement is high, thus conforming to the social environment surrounding them that emphasizes the worth of higher education. One could also phrase this concept in the language of confirmation bias: Parents of different socioeconomic status differ in terms of in which case they are eager to adjust their expectations and when confirmation bias prevents them from adjusting these expectations. Low-SES parents react more strongly to information that confirms the expectations of their social environment, namely, that their children will attend low educational tracks; however, they are reluctant to adjust their expectations in ways that go against these social norms. For high-SES parents, this mechanism works in the opposite way.

H2(b): *Compared to high-SES parents, low-SES parents react more strongly to negative surprises and less strongly to positive surprises.*

2.4 Variations by Federal State

Finally, German federal states vary in terms of the degree to which parents can influence track placement. This is potentially an important variation in the context of expectation adaptation. And it also affects the extent to which track placement can be considered to be an exogenous “shock”.

If parents have a high level of influence on tracking decisions, the influence of previous expectations on track placement increases. Therefore, a mismatch between expectations and track placement is less likely to occur. In this situation, track placement is more endogenous to parental expectations. Expectations in third grade can be expected to have a direct influence on expectations in fourth grade and those in turn influence the parental decision for a specific track. Expectations post track placement are in this scenario a consequence

of earlier expectations while track placement itself does not exert a causal influence on expectation change.

If parents have no influence on track placement, we can consider track placement as an exogenous factor. Expectations in third grade are considered to be still unaffected by track placement (pre-treatment) while those in fifth grade have changed as a consequence of the track allocation (post-treatment). Expectations in fourth grade might be affected by anticipatory effects concerning track placement as parents already have received first information on the likely track allocation, however these expectations also do not affect the track placement directly. Nevertheless, also in this scenario it is not easy to exclude that expectations in third grade do affect other variables that in turn might affect track placement. Therefore, it still requires strong assumptions if the tracking effect should be considered causal.⁴

Across the German federal states, we do see variation concerning how much influence parents have on the tracking decision. However, none of the states, can be considered one of the extreme types above. In each state parents do have some influence on track placement and even if they cannot make the tracking decision by themselves, it is known that they can affect, for example, teacher recommendations (Schneider, 2011; Barg, 2013). On the other hand, nowhere do parents make the decision completely by themselves as in all federal states a system of teacher recommendation and counseling exist. Nevertheless, we can expect that in some states track placement is more strongly endogenous than in others. Therefore, it is likely that in states with more parental influence, expectations do less strongly adjust to track placement. An idea that has also been voiced by Stocke (2010) who expects that expectations are more closely adjusted to achievement cues in federal states with less parental influence on track placement than in systems with more parental influence.

Additionally, SES-related differences could vary across the different types of tracking systems. It is known that high-SES parents in particular try to achieve higher track placements

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⁴An alternative design would be to compare contexts with and without track placement to isolate the tracking effect. However, this would lead to an entirely different research question compared to the one in this paper.

for their children (Barg, 2013; Schauenberg, 2008). Relatedly, Dollmann (2016) finds that social inequality is lower in context in which parents have less leeway in making educational decisions and track placement is more strongly determined by educational performance. Therefore, in systems with a high level of parental influence on tracking decisions, the SES-related differences that are related to adaptation might be larger.

To investigate these ideas, I analyze the different types of school systems separately. As these analyses are rather exploratory, they are not guided by clear hypotheses.

3 Context, Data, and Methods

3.1 Education in Germany

I study expectations in Germany, where education is strongly characterized by early ability tracking and a federalist system. The educational systems of the 16 federal states vary (Maaz et al., 2008; Baumert et al., 2003). For the students living in 14 of these states, primary school lasts four years. At the age of ten, they are placed into different secondary school tracks. In Berlin and Brandenburg, track placement occurs after sixth grade (Kultusministerkonferenz, 2015). Additionally, the number and types of tracks differs across the federal states. However, all the states offer Gymnasium as their highest academic track. This track leads students to Abitur, the highest secondary school diploma and the entrance requirement for higher education. The performance requirements in Gymnasium are high, and many students who are initially placed in this track are moved to a lower track during their academic careers. In all the states, Gymnasium is complemented by one or several other tracks with easier curriculum and stronger emphases on applied content (Maaz et al., 2008). These tracks mainly prepare students for vocational training, although some of them also offer an option to obtain Abitur (Gesamtschule). The exact structure of these tracks differs across the federal states. The decision of whether to attend Gymnasium is the most consequential decision for the furtherance of students' academic careers, as it determines whether a student is placed on a path to higher education. Therefore, I focus on the difference between Gymnasium and the other tracks. This analytical decision also ensures that

my analysis is comparable across the different federal states within the complex German educational system.⁵

Finally, in eleven of the 16 German federal states, the decision of which track a student attends is ultimately made by his or her parents (Kultusministerkonferenz, 2015). Schools and teachers give recommendations that vary in formality, but these recommendations are not binding. In the other five federal states (namely, Bavaria, Brandenburg, Saxony, Schleswig-Holstein, and Thuringia), the final decision is made by students' schools or teachers. In this situation, parents can voice their wishes, but they are not the final decision-makers. However, they can often challenge track placement decisions by allowing their children to take entrance tests or by sending them to tryout lessons for the track that they want their children to attend. This is an important variation in the context of expectation adaption.

3.2 Data and Sample

To study the research question, I use German student cohort data from the National Educational Panel Study (NEPS): Starting Cohort Kindergarten, doi:10.5157/NEPS: SC2:8.0.1 (Blossfeld and von Maurice, 2011). From 2008 to 2013, NEPS data was collected as part of the Framework Program for the Promotion of Empirical Educational Research funded by the German Federal Ministry of Education and Research (BMBF). As of 2014, NEPS is carried out by the Leibniz Institute for Educational Trajectories (LIfBi) at the University of Bamberg in cooperation with a nationwide network.

These data focus on following parents and students across tracking decisions and the entrance into secondary school after fourth grade. Starting Cohort 2 of the NEPS consists of a sample of kindergarten children drawn from the 2011 school year. These children were followed throughout their two years of kindergarten (2011-2013), four years of primary school (2013-2017) and into their time in secondary school (2017-2019). When these students were in the first grade of primary school, the sample was refreshed, and it contains 9,337 students.

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⁵It would be desirable to additionally analyze the role of schools which offer several track under one roof in this context. Some of those schools (Gesamtschule) essentially delay the decision on whether a student wants to obtain Abitur later-on as they provide the option of Abitur outside of the traditional Gymnasium. However, given the variations across federal states in how prominent those schools are, variations in which tracks they are composed of as well as data limitations in the NEPS, a detailed analysis of those schools is unfortunately beyond the scope of this paper.

Data are collected yearly, and the current version provides data up until the sixth grade; however, the data collection is still ongoing. The tracking decisions for these children were made during fourth grade, around the time that the data for that school year were collected. For this reason, information on expectations that was collected during fourth grade is likely to be influenced by the actual tracking decision. Therefore, I examine the adaptation of expectations that occurred between third grade (before the track decision process started) and fifth grade (when the track placement had just occurred).

In the federal states of Berlin and Brandenburg, students are not yet tracked when they are in fifth grade. Therefore, I exclude these two states and restrict my analysis to the federal states that begin tracking students after fourth grade.⁶ I use multiple imputation via chained equations to deal with missing information pertaining to students' social backgrounds and track placements.⁷

I also restrict the sample to the students and parents whose expectations were observed before and after tracking occurred. This leaves me with a sample of 3,723 students and parents, each of whom were observed twice, once before the occurrence of tracking in third grade and once after the occurrence of tracking in fifth grade.⁸

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⁶Some students in the sample experienced grade retention and were still not tracked at the time of the fifth grade measurement, although their peers in the same federal state were. I coded these students as not attending the high track. These students can be expected to remain at the lower end of the achievement distribution and, as they will remain in Grundschule, any potential high expectations will be disappointed. An alternative specification of the analysis, in which I remove these students from the analysis, does not change the substantive conclusions.

⁷I use 100 imputed datasets and, in addition to all the independent variables, include a set of auxiliary variables (e. g., test scores) in the imputation model. For parental SES, 20.6 percent of the cases are imputed; for tracking, 56.7 percent of the cases are imputed. The dependent variable expectations is also included in the imputation model but is used in its unimputed form for the actual analysis (e. g., the imputation then deletion approach (Von Hippel, 2007)). The results are similar if listwise deletion or a model with imputed dependent variable is used. If anything, the effects presented in this paper are smaller than those found using listwise deletion. Therefore, the analysis can be viewed as a conservative interpretation of the actual process of expectation adaptation. More detailed information on the imputation procedure can be found in Appendix A. The analyses using listwise deletion and an imputed dependent variable are available upon request.

⁸The analysis of the different federal states only includes 3,166 of these students due to missing information about the federal states in which the students lived. More information on the restrictions placed on the sample can be found in Appendix B.

3.3 Measurement of Variables

The main interest of this study is how parents adapt their educational expectations of their child in light of track placement and how this adaptation differs based on social origin. Table 2 shows the summary statistics of all the variables by parental background as well as those of the overall sample.

During the data collection corresponding to NEPS SC2, parents' expectations were recorded in several waves by asking them which final secondary school degree they expected their child to obtain. I focus on a dichotomous measure of whether parents have high expectations for their child. I define having high expectations as expecting Abitur rather than any lower school degree. Table 2 shows that overall, the level of expectations is quite high. Additionally, the percentage of parents who have high expectations increases between third and fifth grade from 69 to 74 percent.

I use different indicators to measure whether track placement affects parental expectations. First, I examine the track itself. As mentioned above, I focus on the difference between being placed in Gymnasium versus being placed in any lower track. I employ track placement as a dichotomous indicator that distinguishes between high (Gymnasium) and low (any other) track placement. Across the whole sample, 64 percent of the students attended Gymnasium in fifth grade.⁹

Second, I evaluate whether expectations are adapted if track placement is not consistent with previous (third grade) expectations. Therefore, the expectations held in third grade are compared to the actual track placement in fifth grade. Both the expectations and the track placement are measured dichotomously. For the parents with high expectations (= Abitur), I consider a consistent expectation-track match to have occurred if their children are placed in the high track (= Gymnasium). For the parents with low expectations (= no Abitur), a match occurs when the corresponding children do not attend Gymnasium in fifth

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⁹Compared to the average German Gymnasium enrollment rates of 40 to 50 percent, this is a rather high percentage of Gymnasium students. Even when using multiple imputations for parental education, the sample seems to be skewed towards high-achieving, high-SES students. These students are seemingly more likely to report their expectations and to stay in the sample until fifth grade. This phenomenon needs to be taken into account when interpreting the results.

Table 2: Summary Statistics of All Variables by Parental Education and Overall.

	BY PARENTAL EDUCATION			OVERALL
	INTERMEDIATE SEC.	UPPER SEC.	HIGHER	
High Expectations 3rd grade	0.47	0.69	0.85	0.69
High Expectations 5th grade	0.54	0.74	0.88	0.74
High Track	0.49	0.64	0.75	0.64
Expectations met				
Negative surprise	0.06	0.08	0.10	0.09
Positive surprise	0.08	0.05	0.04	0.05
No surprise	0.86	0.86	0.86	0.86
N	1,139	977	1,607	3,723

Shares and numbers of observations are averaged over 100 imputed data sets.

Source: NEPS SC2, version 8.0.1, own calculations.

grade. With this information, I create a dichotomous variable denoting whether parents' expectations are met in terms of track placement.

Finally, I divide the variable denoting matches between expectations and track placement into a three-category variable that considers positive and negative surprises separately as well cases in which track placement is consistent with expectations in a third category. A positive surprise means that a student is placed in Gymnasium despite the fact that their parents did not expect them to obtain Abitur when in third grade. A negative surprise means that a student's parents expected them to obtain Abitur in third grade; however, the student was not placed in Gymnasium in fifth grade.

Overall, 14 percent of the parents in the sample faced a surprise concerning track placement and their previous expectations. Of these parents, 9 percent experienced a negative surprise, meaning that their Abitur-related expectations were not followed by their child being placed in Gymnasium; 5 percent experienced a positive surprise, meaning that their low expectations were followed by a placement in Gymnasium.¹⁰

Ultimately, this study is interested in whether the processes of achievement information and tracking differ among different social groups. Social origin is measured by the highest educational degree held by either parent and is recoded into three categories: (1) interme-

¹⁰I also carried out separate analyses for individuals with low expectations and low track placement and high expectations plus high track placement combinations, and the results do not differ from those reported by the main analyses. If track placement is consistent with third-grade expectations, the expectation change is close to zero for both groups.

diate secondary education or less, (2) upper secondary education, and (3) higher education. I choose parental education as a measure for socio-economic status as it has been found to be more closely related to the academic careers and labor market outcomes of children than other dimensions of parental SES (Erola et al., 2016). It can also be reliably measured, is fairly stable over time and often used in research on IEO.

The number of students in each group varies across the 100 imputed samples, as parental education is imputed. To indicate the size of these groups, Table 2 shows the average number of students in each of the three social groups across the imputed samples. There are 1139 students in the low-SES category, 977 in the intermediate-SES category, and 1607 in the high-SES category.

3.4 Empirical Strategy

The aim of my analysis is to study whether track placement — especially a surprising track placement — leads to an adaptation of parental expectations. To estimate the effect of track placement, I use a difference-in-differences (DiD) design. As my data consist of a balanced panel, the two-way fixed effects (2FE) estimator can be used to design the DiD (Angrist and Pischke, 2009).

In this design, a change in expectations between third grade (before tracking) and fifth grade (after tracking) is predicted using different indicators of track placement as treatment variables. I use three different measures of track placement: track placement itself, whether track placement is unexpected, and whether track placement is a positive or a negative surprise. Model I in Table 3 shows the effect of track placement itself, namely, whether being placed in Gymnasium versus another track leads to an adaptation of parental expectations. Models II and III show the effect of having expectations that are consistent with track placement; Model II shows the overall effect and Model III shows this effect by SES category. The final two models categorize the track placement variables into those who did not experience a surprise concerning track placement, those who experienced a negative surprise, and those who experienced a positive surprise. Model IV shows the overall adaptation of expectations, and Model V again shows the effect for each of the different SES groups.

In these models, the effect of track placement is equal to the coefficient of the interaction term between the *post* dummy variable (the indicator of fifth-grade expectations) and the track placement indicator. In the models with SES, the three-way interaction between *post*, track placement and SES shows the effect of track placement by SES. Furthermore, the models contain individual-level fixed effects, thereby removing any influences of individual characteristics that are constant over time. Therefore, these models adjust for selectivity bias better than models that use individual-level control variables for factors such as social background. However, a causal interpretation of the effect of track placement on expectation adaptation is only possible if the change in expectation can be solely attributed to the achievement information received through track placement (Angrist and Pischke, 2009; Karlson, 2015). This is not likely to be the case, as there are potentially other influences on parental expectations that change between third and fifth grade. Therefore, we need to be cautious when causally interpreting the results of this analysis.¹¹

Due to the fixed effects, it is not possible to estimate a main effect of SES; therefore, predicted probabilities are not meaningful. However, marginal effects can be used to interpret the change in expectations between the two time points.

Parental expectations, which are used as the dependent variable, are measured with a dichotomous indicator. I employ linear probability models to estimate this dichotomous outcome, as they are easy to interpret and, compared to models that rely on logistic regression, allow for an easier estimation of interaction effects (Ai and Norton, 2003).

The students in the NEPS sample attend different primary schools. Therefore, ideally, I would account for this data structure by clustering standard errors at the school level. However, due to the survey design, information about which primary school these students attend is missing for all the students who were followed individually rather than being followed within a class. Therefore, using school information would considerably decrease

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¹¹It is possible to control for time-varying characteristics of individuals such as performance measures or effort to increase the precision of the treatment effect estimation. However, it is difficult to determine which time-varying influences are independent of tracking and which are indeed caused by tracking. Those that are caused by tracking are intermediary mechanisms between track placement and fifth-grade expectations. Including these variables does not necessarily improve the causal interpretation of the results and introduces the danger of controlling for part of the effect of interest. Furthermore, few interesting measures are available in both waves of the NEPS data that could be used for this endeavor.

the sample size. I carry out a robustness check, using school information to cluster standard errors for the students with available school information. This analysis results in the same conclusions as the analysis of the full sample without clustered standard errors. The main analysis uses standard errors clustered on the individual level instead.

Finally, because some German federal states allow parents to have more influence on tracking decisions than others, I carry out an additional analysis in which I separately examine the federal states in which parents make the ultimate decision about tracking and the federal states in which this decision is made by the schools. The classification of the federal states was performed using information from the *Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany* (Kultusministerkonferenz, 2015).

4 Results

4.1 Descriptive Statistics

Table 2 shows that the expectations of all the socioeconomic groups increased between the two time points. Furthermore, on average, the expectations of the higher-SES groups were consistently higher. While 47 percent of parents with an intermediate secondary education had high expectations when their children were in third grade, 85 percent of the parents with a higher education had high expectations for their children at this time. For the fifth-grade measurement, the pattern is similar; 54 of the low-SES parents, 74 of the intermediate-SES parents, and 88 percent of the high-SES parents had high expectations when their children were in fifth grade. The low-SES parents raised their expectations comparatively more than the high-SES parents between the two time points (7 versus 3 percentage points). Examining track placement, it can be observed that the high-SES children were more often enrolled in the high track (75 percent for high-SES versus 49 percent for low-SES).

Positive and negative surprises concerning track placement are fairly rare. Overall, 86 percent of parents saw their expectations from third grade confirmed by track placement. The low-SES families experienced positive surprises more often than negative surprises,

while this was the other way around for the higher-SES families. This occurs because, overall, high expectations are much more common among high-SES parents; thus, there is more room to be negatively surprised. Nevertheless, it can be observed that all the different combinations of expectations and track placement exist in all of the SES groups.

4.2 Difference-in-Differences Results

The results of all the difference-in-differences models are shown in Table 3. Each model is estimated based on a sample of 7,446 observations (3,723 individuals at two time points).

Model I shows the results for the effect of whether a student is placed in a low or high track. The coefficient of the $\text{post} \times \text{high track}$ interaction term is statistically significant but small (0.4). A high-track placement does slightly increase the probability that parents will adjust their expectations by 4 percentage points. It is not necessarily surprising that track placement itself does not lead to an enormous adaptation of expectations, as a change in expectations is mostly expected when tracking reveals new information to the family; thus, track placement is, in that sense, unexpected.

Model II assesses whether a mismatch between expectations and track placement leads to a change in expectations (H1(a)). In this model, the interaction term is significant and negative at -0.14 . The positive main effect of post (0.17) means that when expectations are not met, parents' probability of having high expectations increases by 17 percentage points between the two time points; when third-grade expectations are consistent with track placement, this increase is only 3 percentage points. This confirms H1(a), namely, that expectations adapt more strongly if track placement is inconsistent with previous expectations.

Model III extends this test by including an interaction effect with parental SES. The three-way interaction is not significant for upper secondary compared to lower education. There is no significant difference in how parents across these different SES groups adapt their expectations when their previous expectations are not met. However, the size of this effect is not zero and it leans in a positive direction. For highly versus lowly educated parents, the interaction term is significant and also positive. Thus, H1(b) is partly confirmed.

Table 3: Difference-in-Difference Models Predicting Parental Expectations

	TRACK I	CONSISTENT II	III	POS./NEG. IV	V
Post (= 5th grade measurement)	0.03* (0.01)	0.17*** (0.03)	0.27*** (0.05)	0.03*** (0.01)	0.03** (0.01)
Post $\times$ High Track (Ref=Low Track)	0.04* (0.02)				
Post $\times$ Expectations Met (Ref = Not met)		-0.14*** (0.03)	-0.24*** (0.06)		
Post $\times$ Parental Education (Ref = Intermediate Sec.)					
Post $\times$ Upper Secondary			-0.13 (0.08)		0.00 (0.02)
Post $\times$ Higher			-0.16* (0.07)		-0.01 (0.01)
Post $\times$ Expectations met $\times$ Par. Education					
Post $\times$ Expectations Met $\times$ Upper Secondary			0.13 (0.08)		
Post $\times$ Expectations Met $\times$ Higher			0.15* (0.07)		
Post $\times$ Pos./Neg. Surprise (Ref = No surprise)					
Post $\times$ Negative Surprise				-0.23*** (0.02)	-0.34*** (0.06)
Post $\times$ Positive Surprise				0.73*** (0.03)	0.72*** (0.05)
Post $\times$ Pos./Neg. Surprise $\times$ Parents' Education					
Post $\times$ Negative Surprise $\times$ Upper Secondary					0.08 (0.07)
Post $\times$ Negative Surprise $\times$ Higher					0.18** (0.06)
Post $\times$ Positive Surprise $\times$ Upper Secondary					-0.04 (0.08)
Post $\times$ Positive Surprise $\times$ Higher					0.08 (0.07)
Constant	0.69*** (0.00)	0.69*** (0.00)	0.69*** (0.00)	0.69*** (0.00)	0.69*** (0.00)
R squared	0.02	0.04	0.04	0.26	0.26
N	7,446	7,446	7,446	7,446	7,446

All models contain individual fixed-effects, omitting main effects of Track and Parental Education.

B-coefficients, Standard errors in parentheses.

Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: NEPS SC2 Version 8.0.1, multiple imputation applied, own calculations.

Figure 1 shows the marginal-effect plots of the relationship between SES and (in)consistent expectations. The y-axis displays the predicted change in expectations between third and fifth grade. When expectations are met, adaptation of expectation is close to zero for all the SES groups. When expectations are not met, intermediate- and high-SES parents do adjust their expectations somewhat but less so than low-SES parents: the probability of low-SES parents having high expectations increases by approximately 28 percentage points, while this increase is only about 15 percentage points for intermediate- and 12 percentage points for high-SES parents.

Figure 1: Predicted Change of Expectations by SES (Expectations met yes/no)

Marginal Effects based on Model 3 in Table 3.
Source: NEPS SC2, version 8.0.1. Own Calculations.

Next, I examine positive and negative surprises separately. As, overall, the difference between low-SES parents and high-SES parents in Model III is not very strong, it is worth investigating upward and downward adjustments separately. Differences between the SES groups could be masked in the overall pattern if the different behaviors related to positive and negative surprises cancel one another out.

To this end, in Model IV, I divide the case of inconsistent expectations into positive and negative surprises, and I use the case of no surprise as a reference category. In this model, the two interaction terms between post and the variable indicating inconsistent expectations are significant and stronger than the interaction in Model II. The coefficients also point in the expected directions: If tracking results in a negative surprise (e.g., high expectations but low track placement), expectations are adjusted downward. Given the small positive main effect (0.03) and the larger negative interaction effect (-0.23), I conclude that this adjustment is negative in absolute terms. Parents' average expectations are 20 percentage points lower in fifth grade than in third grade if a negative surprise is experienced. If track placement is a positive surprise, average expectations are adjusted upward by 76 percentage points ($0.03 + 0.73$). In the scenario with no surprise, the increase in average expectations is 3 percentage points. Thus, H2(a) is confirmed.

Finally, Model V shows the effect of positive and negative surprises on expectations for the three SES groups. This model shows that the difference between low- and high-SES parents is significant for negative surprises but not for positive surprises. There is also no significant difference found between the low-SES category and the intermediate-SES category. As the coefficients of the three-way interaction term are difficult to interpret, I rely on marginal effects to show the SES differences in more detail.

Figure 2 again shows the predicted change in expectations on the y-axis, the three SES groups on the x-axis, and the three conditions of surprise as three separate lines. The orange line shows the parental responses to a positive surprise. It can be observed that high-SES parents adjust their expectations slightly more strongly upward (a 82 percentage point increase in average expectations) than low-SES parents (a 75 percentage point increase) in this case. However, these differences are not significant, the line overall is fairly flat. In the case of a negative surprise (denoted by the green line), low-SES parents adapt their expectations more strongly downward (by -31 percentage points) than high-SES parents (who adjust by -14 percentage points). These differences are significant. In the scenario with no surprise, all three of the SES groups have fairly stable expectations and exhibit a positive change of approximately 2 to 4 percentage points (blue line). Examining the two-

way interaction term between post and SES, I do not observe a significant difference across the SES groups for this scenario. These results partly confirm the expectations expressed by H2(b): Low-SES parents react more strongly to a negative surprise than high-SES parents. However, there is no significant SES difference in the reaction to a positive surprise.

4.3 Separate Analyses for the Different Federal State School Systems

Figure 3, Figure 4, and Appendix C show the results for the separate analyses of the different federal state school systems. Subfigure (a) in each plot shows the analysis of all the federal states in which the track placement decisions are ultimately made by the schools (e.g., based on grade averages and teacher recommendations). Subfigure (b) shows the analysis of the federal states in which parents ultimately can decide which track their children will attend (usually after mandatory counseling by the school). Overall, for the analysis that

Figure 2: Predicted Change of Expectations by SES (Positive/Negative Surprise)

Marginal Effects based on Model 5 in Table 3.
Source: NEPS SC2, version 8.0.1. Own Calculations.

only considers whether or not expectations are met, the results are fairly similar for both types of tracking decisions. In both school systems, parents adapt their expectations more if their children’s track placement does not meet their previous expectations (see the significant interaction effect in Model II shown in Appendix C). The size of this effect is larger, however, in systems where parents do not make the final tracking decision. Figure 3 shows that in the states that allow schools to make the tracking decisions, the expectation adjustment is considerably larger than in states with more parent influence. This is especially the case for low SES students. The difference between types of school systems is smaller for the other two SES groups. Overall, SES differences seem to be larger in states with school decision than in states with parent decision (30 percentage points versus 13 percentage points) – against our intuition above. The overall probability of expectation change is somewhat higher in the states that allow the schools to make tracking decisions, as predicted by Stocke (2010).

The overall results of the analysis that distinguishes between positive and negative surprises also resemble those of the main analysis for both types of school systems. Parents

Figure 3: Predicted Change of Expectations by SES (Expectations met) for different School Systems

Marginal Effects based on Model 3 in Appendix subsection C.
Source: NEPS SC2, version 8.0.1. Own Calculations.

Figure 4: Predicted Change of Expectations by SES (Positive/Negative Surprise) for different School Systems

Marginal Effects based on Model 5 in Appendix subsection C.
Source: NEPS SC2, version 8.0.1. Own Calculations.

adjust their expectations upward following a positive surprise and downward following a negative surprise (see the significant interaction effect in Model IV, Appendix C). Again, these effects are somewhat larger for the federal states that allow the schools to make tracking decisions than for those that allow the parents to make these decisions.

Figure 4 shows the results for the different SES groups. For the states with parent decision, the pattern closely resembles that of the main analysis. The interaction is not significant for positive surprises but the effect sizes show that in tendency high SES parents adjust their expectations somewhat more than low SES parents. For negative surprises, we do see that high SES parents adjust their expectations less than low SES parents and this difference is also significant. For the states with school decision we do not find clear SES differences in the adaptation of expectations.

5 Discussion and Conclusion

I studied in which ways parents adapt their expectations when their children are confronted with unexpected track placements after primary school. The results show that parents adapt their expectations following the receipt of achievement information such as track placement. Furthermore, they do so especially if track placement reveals new and surprising information about their children's achievement; they do not adjust their expectations if track placement confirms their previous expectations. These results show that, overall, parental expectations follow a similar logic as student expectations in the adjustment to achievement information as they are consistent with those produced by studies on student expectations (Karlson, 2015, 2019; Andrew and Hauser, 2011).

Expectations are not stable constructs as has been predicted by status attainment theory (Sewell et al., 1969); rather, they continue to change at least until the beginning of secondary school. Nevertheless, low-SES parents show consistently lower levels of expectations than high-SES parents, which indicates a certain level of structural stability of expectations.

Furthermore, I do find SES-related differences in how expectations react to surprising achievement information. I examine positive and negative surprises separately, which is an important innovation of this study. I find that low-SES parents react more strongly to negative surprises by adapting their expectations downward than high-SES parents do. Concerning positive surprises, I do not find significant SES differences in the upward adaptation of expectations. Previous research has produced inconclusive results on the question of whether high- or low-SES students react more strongly to achievement information (Karlson, 2019; Alexander et al., 1994). I show that for parents, the answer on whether low- or high-SES families react more strongly to achievement information depends on whether the information provided is positive or negative. Low-SES parents react more strongly to negative information but equally strong (or slightly less strong) to positive information.

This is an important finding, as parents' expectations are consequential for future educational trajectories; thus, expectations can contribute to social inequality. In addition to the initial SES gaps in expectations, these inequalities are exacerbated by differences in expectation adjustment during students' academic careers. Both high- and low-SES parents

seem to update their expectations; however, these updates are partly skewed in different directions. If low-SES students are allocated to a low track, their parents are likely to lower their expectations and to accept lower educational outcomes as reality. High-SES parents, in contrast, are more likely to ignore this negative information and maintain their high expectations. This might increase the likelihood that high-SES families will seek opportunities to transition upward in the educational system, which will enable them to finally reaching higher educational attainment despite low initial track placements (Buchholz and Schier, 2015). However, if low-SES students are allocated to a high track, their parents react similar to high-SES parents in how strongly they adapt their expectations.

This phenomenon could also have repercussions for students' future academic careers. Having parents with low expectations will affect students' own expectations. As a consequence of this, low-SES students enter spirals of downward adjustment more easily than high-SES students do. In the literature, this social stratification of expectations has been attributed to the realism that tracking systems induce in parents and students. This realism causes students to be aware of their opportunities and to adapt to the barriers around them (Buchmann and Park, 2009). Low parental expectations are a further barrier for low-SES students who have been placed in a low track. While realism might be useful at times, here, it is a process that is potentially harmful. Due to the differences among SES groups in terms of expectation adjustment, low-SES students are caught in self-fulfilling prophecies where their low track placement triggers low expectations of parents, which in turn decrease their own expectations, leading to decreased effort, additional negative achievement information and, eventually, suboptimal educational outcomes. I do not study these follow-up processes directly; therefore, they remain rather speculative in this paper. It would be interesting to study the consequences of these differences in expectation adjustment and the bi-directional influences of expectations and achievement in more detail in the future.

Finally, in addition to SES-related differences, I show variations across the different federal states. Overall, expectations are adapted somewhat more strongly in federal states where parents have less influence on their children's track placement, as predicted by Stocke (2010). It seems that in states with school-based decisions, parental expectations are gen-

erally more affected by realism, as these parents have fewer opportunities to influence the academic careers of their children. Concerning SES differences, the results are mixed. Overall, the SES gap when expectations are not met, is larger in states with a school decision. However, when I distinguish positive and negative surprises, the SES differences seem to be clearer in the states with more parent influence. Disentangling all of the processes related to context differences goes beyond the scope of this study; however, it would be interesting to study this topic in more detail in the future.

This study has limitations that should be addressed in future research. A primary issue is presented by the isolation of the tracking effect. As was already mentioned in the methods section of this paper, it is difficult to determine whether the change in parental expectations is caused by track placement or by another process that occurs at the same time. This problem could be partially solved by the inclusion of time-varying control variables on the individual level. However, as was explained earlier, the selection of such additional control variables is difficult on a theoretical level, and it is not possible in this case due to the data limitations in this study. Another way of improving the insight in the causal processes at play would be to include students' expectations into a model where the mutual influence between parent and student expectations and their effects on educational outcomes can be studied. This would be an interesting avenue for further research.

Second, the measurement of expectations themselves could pose a potential problem. The expectations of parents might have different reference points in third grade than they do in fifth grade. A big-fish-little-pond effect (Marsh and Parker, 1984; Marsh, 1988) could play a role in fifth-grade expectations, namely, where parents base their expectations on track-specific reference points rather than on their standing in the overall educational distribution. Furthermore, while I employ a difference-in-differences design to examine the changes within individuals over time and conduct separate analyses for the different tracking regimes, it could be interesting to examine how expectation changes in the same age range differ across school systems that use tracking and those that do not use tracking at all. This analysis would help to improve the causal estimation of the effect of track placement, as it would compare that effect to a baseline condition in which no track placement occurs. Future

research should employ such a design with suitable data. Nevertheless, even if it is difficult to establish causality, the study provides an improvement upon previous research that only uses individual-level control variables by introducing individual fixed effects.

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Table A1: Complete and Imputed Cases of Independent Variables

MODEL	VARIABLE	COMPLETE	IMPUTED	PERC. IMP.	TOTAL
logit	Track	3,891	5,091	56.7%	8,982
ologit	Parental Education	7,133	1,849	20.6%	8,982
pmm	Science Competence (wave 5)	5,346	3,636		8,982
pmm	Vocabulary Score (wave 5)	5,323	3,659		8,982

Source: NEPS SC2, Version 8.0.1. Own Calculations.

Appendix

A Imputation Model

I use multiple imputation via chained equations to complete missing values on the variables track and parental education and create 100 imputed data sets. For track and parental education, (ordinal) logistic regression is used as imputation model. For the science and vocabulary competence measures, I apply predictive mean matching (pmm, knn=10). Also for most auxiliary variables, I rely on pmm as the number of variables in the model leads to convergence problems otherwise. The imputation model includes all variables of the main analysis including the dependent variables. Finally, I also add the interaction terms used in the main models to the imputation model as “just another variable” (Von Hippel, 2007). Additionally, I include the following auxiliary variables: income (wave 3 to 7), isei (wave 3 and 5), cultural capital (wave 3 and 6), books at home (wave 3 and 6), home possessions (wave 3 and 6), an indicator of whether the student sees school as fun (wave 5 to 8), exertion (wave 5 to 8), likelihood of obtaining Abitur (wave 5), vocabulary score (wave 3), grammar score (wave 3), spelling (wave 6), reading speed (wave 4), reading comprehension (wave 4 and 6), mathematics score (wave 3, 4, and 6), student expectations (wave 5 to 8), idealistic aspirations of parents (wave 3 to 7) and students (wave 5 to 8), number of siblings, birthyear, gender and migration background. Furthermore, I use fixed effects on the federal state level. Table A1 shows complete and imputed cases for the independent variables. For those variables imputed data points are used in the main analysis. For the dependent variable expectations, imputed observations are discarded.

Table A2: Sample Cuts

Full NEPS Sample from wave 3 onwards (after refreshment)	9,337
Without Federal States Berlin and Brandenburg which track only after sixth grade	8,982
Measurement of expectations in third grade missing (DV)	5,005
Measurement of expectations in fifth grade missing (DV)	3,723
Information on Federal state missing (for analysis separate by Federal state)	3,166

Source: NEPS SC2, Version 8.0.1. Own Calculations.

B Sample Cuts

Table A2 shows how the full sample of NEPS starting cohort 2 is restricted in order to obtain the sample for my analysis. First, students in Berlin and Brandenburg are excluded as they are not yet tracked in fifth grade. Next, those with missing information on expectations in third grade and in fifth grade are removed. This leaves me with a sample of 3,723 students for the main analysis. Finally, the analysis for different federal state systems contains 3,166 students due to missing information on the federal state.

C   Separate Analyses for Different Types of Federal States – Tables

Table A3 and Table A4 show the results for the analysis in which different types of federal state school systems are distinguished. Table A3 shows the adaptation of expectations for federal states where ultimately schools make decisions about track placement. Table A4 shows that same results for federal states where parents make the final decision about tracking.

Table A3: Difference-in-Difference Models for States with School Decision

	TRACK I	CONSISTENT II	III	POS./NEG. IV	V
Post (= 5th grade measurement)	-0.01 (0.02)	0.28*** (0.06)	0.45*** (0.11)	0.02* (0.01)	0.03 (0.02)
Post × High Track (Ref=Low Track)	0.11*** (0.03)				
Post × Expectations Met (Ref = Not met)		-0.26*** (0.06)	-0.43*** (0.11)		
Post × Parental Education (Ref = Intermediate Sec.)					
Post × Upper Secondary			-0.19 (0.15)		-0.02 (0.03)
Post × Higher			-0.30* (0.15)		-0.01 (0.02)
Post × Expectations met × Par. Education					
Post × Expectations Met × Upper Secondary			0.17 (0.16)		
Post × Expectations Met × Higher			0.30* (0.15)		
Post × Pos./Neg. Surprise (Ref = No surprise)					
Post × Negative Surprise				-0.42*** (0.06)	-0.49*** (0.14)
Post × Positive Surprise				0.75*** (0.05)	0.81*** (0.07)
Post × Pos./Neg. Surprise × Par. Education					
Post × Negative Surprise × Upper Secondary					0.15 (0.18)
Post × Negative Surprise × Higher					0.06 (0.17)
Post × Positive Surprise × Upper Secondary					-0.08 (0.12)
Post × Positive Surprise × Higher					-0.10 (0.11)
Constant	0.62*** (0.01)	0.62*** (0.01)	0.62*** (0.01)	0.62*** (0.00)	0.62*** (0.00)
R squared	0.04	0.08	0.10	0.40	0.41
N	1,942	1,942	1,942	1,942	1,942

All models contain individual fixed-effects. Main effects of Track and Parental Education are therefore omitted.

B-coefficients, Standard errors in parentheses.

Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Source: NEPS SC2 Version 8.0.1, multiple imputation applied, own calculations.

Table A4: Difference-in-Difference Models for States with Parent Decision

	TRACK I	CONSISTENT II	III	POS./NEG. IV	V
Post (= 5th grade measurement)	0.04* (0.02)	0.13*** (0.03)	0.23*** (0.07)	0.03*** (0.01)	0.03 (0.02)
Post × High Track (Ref=Low Track)	0.01 (0.02)				
Post × Expectations Met (Ref = Not met)		-0.10** (0.03)	-0.20** (0.07)		
Post × Parental Education (Ref = Intermediate Sec.)					
Post × Upper Secondary			-0.14 (0.09)		0.02 (0.02)
Post × Higher			-0.13 (0.08)		-0.01 (0.02)
Post × Expectations met × Par. Education					
Post × Expectations Met × Upper Secondary			0.16 (0.10)		
Post × Expectations Met × Higher			0.12 (0.08)		
Post × Pos./Neg. Surprise (Ref = No surprise)					
Post × Negative Surprise				-0.18*** (0.03)	-0.26*** (0.06)
Post × Positive Surprise				0.71*** (0.04)	0.68*** (0.07)
Post × Pos./Neg. Surprise × Par. Education					
Post × Negative Surprise × Upper Secondary					0.01 (0.09)
Post × Negative Surprise × Higher					0.14* (0.07)
Post × Positive Surprise × Upper Secondary					-0.07 (0.12)
Post × Positive Surprise × Higher					0.16 (0.10)
Constant	0.72*** (0.00)	0.72*** (0.00)	0.72*** (0.00)	0.72*** (0.00)	0.72*** (0.00)
R squared	0.02	0.02	0.03	0.21	0.21
N	4,390	4,390	4,390	4,390	4,390

All models contain individual fixed-effects. Main effects of Track and Parental Education are therefore omitted.

B-coefficients, Standard errors in parentheses.

Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: NEPS SC2 Version 8.0.1, multiple imputation applied, own calculations.

D The Relation to Students' Competence

Next to track placement, also other achievement indicators might matter for the development and adaptation of expectations. Students continuously receive information about their achievement throughout primary school, already before they are placed in different ability tracks. It can be expected that parents of students who consistently receive positive information about their competence form higher expectations about track placement in the first place (Sewell et al., 1969). Similarly, those who receive negative information are more likely to form low expectations. In addition, also parents' *reaction* to track placement might depend on such additional competence information that students received before track placement.

I argue that track placement and other competence information can reinforce each other in their effect on expectations. If the achievement information that parents receive through track placement is in line with other competence information, then this could strengthen the effect of track placement on adaptation of expectations. If track placement is at odds with other achievement indicators, this could weaken the effect of track placement on expectations. For example, parents who consistently receive positive information about the students competence might be more inclined to believe that this information is based on actual underlying ability. If information is inconsistent, a positive surprise regarding track placement might be rather attributed to luck in this specific event. Therefore, parents might more strongly adjust expectations upwards in the case of a positive track placement if a student is also showing high levels of test scores or school grades than if a student is performing poorly on other achievement indicators. For negative surprises, this relationship works in the opposite direction. If parents are negatively surprised by track placement, they will rather attribute this to bad luck if other competence information is positive. In this case expectations will not be lowered strongly. If the negative surprise is in line with other competence information, then parents will believe that students' true ability is low and they will lower their expectations more strongly.

Furthermore, following the argument on ability and effort outlined above, I expect SES differences in this relationship. Low SES parents will more easily believe that negative

surprises are due to a lack of ability than high SES parents, and more so if this information is consistent with other negative achievement information (Breen, 1999). However, the exact direction of the differences between the SES groups is rather exploratory.

I look at two measures of competence: science competence and vocabulary competency, both measured in third grade. Science competence was evaluated by a test taken by students in the classroom that contained 23 questions related to the topics environment, technology, and health. Vocabulary is evaluated by a vocabulary test that was also administered in the classroom and contained 72 items. The two measures are standardized with mean zero and a standard deviation of one for the entire sample before imputation. Descriptive statistics of the two variables show that competency is stratified by SES: concerning science competence the average values are respectively -0.04 , 0.17 , and 0.49 for low, intermediate and high SES students. For vocabulary competence they are 0.03 , 0.18 , and 0.40 .

I analyze the relationship between SES, parental expectations and track placement for students of difference competence levels by introducing a further interaction with competence measures in the DiD-models. The first model in this analysis studies a three-way interaction between the *post* dummy, the track placement, and competence. The second model adds SES and, therefore, includes a four-way interaction between *post*, track placement, SES, and competence. Similar to SES, a main effect for competence in third grade cannot be estimated as this measure does not vary across time points. Nevertheless, again, marginal effects can be shown. As these models have a high complexity due to the many interaction terms, I rely exclusively on the discussion of those marginal effects the full regression tables are available upon request.

Figure A1 shows again the predicted change of expectations on the y-axis. Students' science competence levels are displayed on the x-axis.

In general, the results for the two types of competences are very similar. We see that in the condition of “no surprise” (blue line) the change of expectations stays close to zero for all levels of competence. For positive surprises (orange line) the predicted change in expectations increases with increasing competence levels, somewhat steeper for vocabulary than for science. While the pattern is similar, the interaction effect is significant for vocabulary

Figure A1: Predicted Change of Expectations by Competence

Source: NEPS SC2, version 8.0.1. Own Calculations.

but not for science. For negative surprises (green line), the predicted change of expectations decreases significantly with increasing competence levels for both types of competence. Parents of more competent students also react more strongly to positive and less strongly to negative surprises.

Figure A2 shows the relationship with competence by level of SES. The solid lines show positive and the dashed lines negative surprises. The three colors represent the three SES groups.

Figure A2: Predicted Change of Expectations by Competence and SES

Source: NEPS SC2, version 8.0.1. Own Calculations.

The four-way interaction between the post dummy, track placement, SES, and competence is only significant for the difference between low and high SES students concerning positive surprises and vocabulary. All other interaction terms are insignificant. To a large

extent there are no clear SES differences in the adjustment of expectations when additional competence measures next to track placement are considered.

Overall, I do find here that other competence information does influence the relationship between track placement and expectation change. The higher the competence levels of students are on other indicators of achievement (here science competence and vocabulary) the more expectations are changed upward in the case of a positive surprise. In the case of a negative surprise, high levels of competence weaken the downward adjustment of expectations. SES differences in this relationship seem not to be strong.