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Growing up to be fearful? Social evaluative fears during adolescence

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Citation

Sumter, S. R. (2010, March 2). *Growing up to be fearful? Social evaluative fears during adolescence*. Retrieved from <https://hdl.handle.net/1887/15050>

Version: Not Applicable (or Unknown)

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Note: To cite this publication please use the final published version (if applicable).

CHAPTER 1.

General Introduction

Social Anxiety during Adolescence

Social anxiety disorder (SAD), or social phobia, is one of the three most common psychological problems in adolescence (Ollendick & Hirshfeld-Becker, 2002). Prevalence rates for SAD range between 7% and 13% (Furmark, 2002). Several retrospective studies have pinpointed the onset of social anxiety during adolescence (Rapee & Spence, 2004). For instance, Otto et al. (2001) reported an average age of onset of 10-11 years, and 15 years if they had not reported any other childhood anxiety disorder. Rarely has age of onset been reported during early childhood or after late adolescence, e.g. 80% of participants in the Otto et al. study reported an age of onset before 18 years. In addition, evidence for an increase of social phobia prevalence rates during the adolescent period has been reported as well. For example Essau, Conradt, and Petermann (1999) found prevalence rates that started at 0.5% among 12-13 years olds to 2% among 14-17 year olds. Similar results were reported by Wittchen, Stein, and Kessler (1999), although their prevalence rates were somewhat higher overall. In the Wittchen et al. study social phobia prevalence rates increased into late adolescence and young adulthood, this is 4.0% among the 14-17 year olds and 8.7% among the 18-24 year olds.

It has been proposed that a normative increase in social fears underlies the rise in clinical social anxiety disorder during adolescence (e.g., Miller, Boyer, & Rodoletz, 1990; Wenar, 1990; Westenberg, Siebelink, & Treffers, 2001). Several studies have investigated the developmental pattern of social fear in non-

clinical samples, but the findings have been mixed. Some studies have found support for a high salience of social fears during adolescence. Essau, Conradt, and Petermann (1999) studied social fears in a community study of adolescents between the age of 12 and 17 years ($N = 1035$). Almost half of the sample reported experiencing social fears (47.2%) and a temporary increase in social fears was observed as well, with the highest number of fears being reported by the 14-15 year olds.

Other studies reported that levels of social fear were stable (e.g., Gullone, King, & Ollendick, 2001) or even diminished during this time period (e.g., Gullone & Lane, 2002). However, Weems and Costa (2005) showed that if social fears are compared with other fears, social fears are most pronounced during adolescence. Thus, studies might not show age differences in absolute levels of social fears, but if these fears are contrasted with other fears age differences do become apparent.

However, based on existing literature Rapee and Spence concluded in their 2004 review that "Contrary to folklore, several studies have indicated little change or even a slight decrease in social anxiety and self-consciousness from late childhood to early adolescence" (Rapee & Spence, p. 741). This review focused on the etiology of social anxiety. The risk and protective factors they discussed included, genetics, temperament, parental influences, and traumatic experiences. Notably, they discuss age of onset and prevalence rates of social anxiety and phobia, while no attention was paid to possible developmental variables that could contribute to the experience of social fears. Instead, they argue that the adolescent bound onset of social phobia is due to increased life interference of this fear. This implies that adolescents do not experience more distress during social situations, but rather that distress becomes a larger problem. As adolescents encounter more social situations and their peer interactions are more important to them, similar levels of distress might be experienced as more problematic and trigger maladaptive behaviors, such as avoidance, on a larger scale.

Because, up to now the findings on the developmental pattern of social fears have been mixed and large longitudinal studies that specifically focus on the development of social fears are absent, it remains unclear whether there is an adolescent-bound increase. Hence, the main aim of the current thesis

was to investigate whether an adolescent-bound increase in social fears can be observed.

Why would adolescence be a period of increased sensitivity to social situations?: etiology of social fears

An increase of social fears during adolescence can be understood in light of the many changes that occur during this phase in life. There are several developmental variables and models that could help explain why age of onset of social fears is placed at adolescence and why adolescents experience negative emotions in relation to social situations, in particular with reference to peer interactions. Discussed below are the possible role of cognitive development, pubertal development, and psychosocial development. These developmental changes that occur within individuals in combination with the changing social context might result in a vulnerability to social fears. To provide a general impression of the framework in which the current work was carried out, Figure 1 outlines the assumed relationships between the central variables in the present thesis.

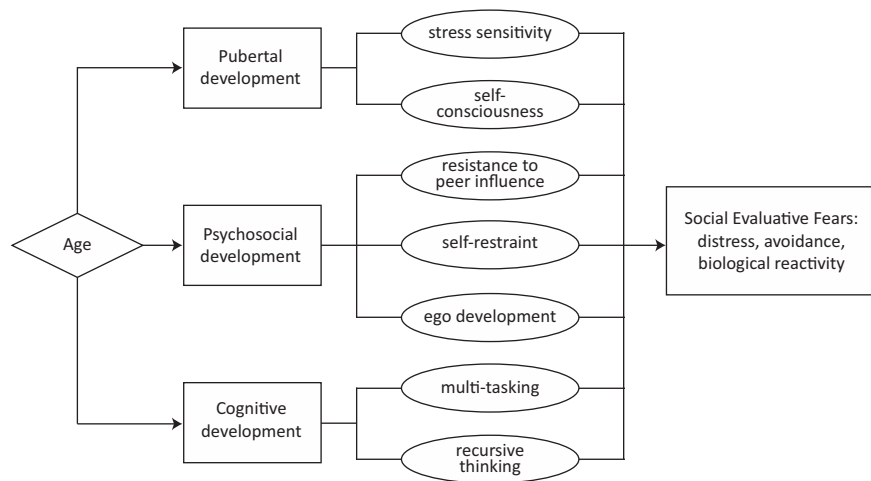


Figure 1. Developmental variables that might contribute to the emergence of social fears during adolescence.

Cognitive Development

Although cognitive development takes immense leaps during childhood, progress during adolescence is substantial as well. From the early studies of Piaget (1972) who reported that formal operational reasoning emerges at age 12 to 15 years, the increased ability in abstract reasoning has received much attention (Hatcher, Hatcher, Berlin, Okla, & Richards, 1990). Another topic that has been linked to adolescence is the emergence of advanced perspective taking skills (e.g., Selman, 1980; Miller, Kessel, & Flavell, 1970). Recent findings from brain studies have contributed to the renewed interest in cognitive development during adolescence and provided neural evidence for behavioral data already collected (e.g., Paus, 2005; Giedd et al., 1999). These studies have also brought about increased attention for changes in social cognition during adolescence. The frontal lobe areas that are said to mature into late adolescence carry special importance for social cognitive development (Paus, 2005).

Several of these developmental changes might be crucial to experiencing social fears, especially social evaluative fears which are driven by anticipated evaluations. For example, in a study among 3 to 14 year olds, Muris, Merckelbach, Meesters, and Van den Brand (2002) showed that with increasing age and cognitive development children were able to elaborate on their worries. Adolescents' advanced cognitive abilities allow them to reflect on upcoming events, which would contribute to more worry in the run up to social situations. Rosso, Young, Femia, and Yurgelun-Todd studied frontal lobe functioning in a small sample of 9 to 18 year olds (N = 20). In addition to an age related increase in abstract reasoning and set shifting into late adolescence, they also reported a direct link between increased abstract reasoning and social anxiety. However, it needs to be mentioned that the effect was small and the sample size limited. Thus, future studies are needed to investigate the relationship between social fears and increased abstract reasoning.

Two aspects that might be especially relevant to experiencing social fear are recursive thinking and multitasking. Recursive thinking might best be viewed as a prerequisite for experiencing social fears. To experience social fear it is necessary to be aware that others might think about and judge you. Recursive thinking enables the adolescent to play into the wishes of their audience,

but it might also pave the way for insecurities and other vulnerabilities or less adaptive outcomes. For example, Veith (1980) found that increased recursive thinking was related to self-image. The difference between children's ideas about their actual selves and ideal selves increased. This growing discordance between possible selves could contribute to the emergence of insecurities.

Furthermore, social situations, including public speaking, require several skills to be handled successfully. During a public performance you need to: 1) remember what you were going to say, 2) pay attention to the time, 3) be aware of how the audience is judging your presentation and yourself. To think of all these things simultaneously would probably require additional mental capacity. During adolescence working memory increases (Gathercole, Pickering, Ambridge, & Wearing, 2004) and enables the ability to multitask, which might allow children to reflect on all these aspects. As a result, multitasking would enable adolescents to not only better their performance, but it would at the same time leave the necessary mental capacity to be aware of the fact that they are evaluated during their performance.

Pubertal Development

For decades early adolescence has been characterized by a greater awareness and sensitivity to the evaluation by others. Puberty has been invoked by several theorists as the causal explanation for this change. Elkind and Bowen (1979) argued that the onset of puberty brings about an increase in self-consciousness. More specifically, others state that the heightened preoccupation with their own bodies, which undergo dramatic changes at puberty, might contribute to increasing feelings of self-awareness (Buss, 1980). In line with these suggestions, Thompson and Goodvin (2005) state that "The burgeoning capacities for abstract thought, together with the social circumstances of adolescence and the psychobiological changes associated with puberty, can foster significant changes in self-understanding, self-evaluation, and the social self" (p. 418). Although increases in self-consciousness and greater awareness of evaluation by others, which creates a platform for developing social fears, have been linked to pubertal development, experimental evidence for this relationship is limited. Some have found evidence for an increase of social fears in early adolescence (e.g., Weems & Costa, 2005) which would suggest that the

changes might be linked with the onset of puberty. However, other studies have reported the rise in social fears to occur during mid-adolescence (Westenberg et al., 2004) which makes it less likely that puberty would be the causal factor in the etiology of social anxiety. Due to these inconsistent age findings, it becomes difficult to deduce clear expectations about puberty's role. The direct relationship between puberty and social anxiety has in fact gone largely unexplored.

In short, the onset of puberty has been viewed as the instigator of a variety of emotional disorders (Dahl, 2004). Although some data is available that support the idea that puberty triggers a period of increased emotional disorders, there are still no studies available that have carefully investigated the relationship between pubertal development and social anxiety.

Psychosocial Development

Adolescence is also a time of psychosocial development. There are several models of psychosocial development, but thus far few have been studied in relation to social fears. For example, Cauffman and Steinberg (2000) presented a multifaceted model of psychosocial maturity. Some central elements of this model are perspective taking (e.g., consideration of others), personal responsibility (e.g., resistance to peer influence and autonomy), and temperance (e.g., impulse control). Although this model has been mainly applied to understanding externalizing and risk behavior in youth, parts of this model can also better our understanding of social fear. For instance, resistance to peer influence is thought to show a temporary decline during adolescence. This decline is said to contribute to increased risk behavior. However, not being able to resist peer influence indicates that youth are particularly vulnerable to peer approval. Social situations could, if you do very poorly, damage your peer status, which would explain why adolescents would - at least temporarily - be more fearful of social situations with peers. Furthermore, during adolescence some aspects of self-restraint are expected to improve. For example, research has shown that adolescents become more considerate of others (Cauffman & Steinberg, 2000). Although this ability would keep adolescents from engaging in problem behaviors, it might create a vulnerability to experience social fears.

The relationship between another model of psychosocial development and social fears has been directly tested, namely ego development. Ego develop-

ment – a model introduced by Loevinger (1993) - can be measured independently of age and is an index of a child's level of psychosocial development. Ego development can be visualized as the glasses through which we experience the world. Westenberg et al. (2004) showed that ego development explains some of the variance on self-reported social fears, over and above age. The children at the Conformist stage (E4), which is characterized by a focus on reciprocal social relationships, and being liked and accepted, reported more social fears than children at a lower ego level, including the Impulsive (E2) and Self-protective (E3) stage. In the latter stage children are less focused on the reciprocity of friendships, but take a more instrumental view, making them less sensitive to peer acceptance and rejection. Apart from the study by Westenberg, the relationship between ego development and social fears has not been studied.

Social Anxiety and Normal Development Study

Background Thesis

At the start of this research project, anno 2005, few large scale studies had been conducted to study the development of social fears and anxiety (e.g., Essau et al., 1999) and no longitudinal studies were available. Furthermore, only one study had been conducted to better understand which developmental variables could contribute to the increase in social fears (Westenberg et al., 2004). For this reason the Social Anxiety and Normal Development study (SAND study, www.sand-lu.nl), which included a longitudinal study, was developed. The longitudinal research project encompassed two main research strands. One strand of research and the focus of the current thesis was to track normative changes in social fearfulness and its relation with different aspects of normal development during adolescence. The second strand of research focused on comparisons between high and low socially anxious youth (see thesis Miers, 2009).

A cohort-sequential design with three waves of data collection was adopted to facilitate developmental analyses within a relatively short (three year) time span (see Table 1). The first (T1) and last (T3) data collection were considered main assessments and included two visits to the university, with a public speaking task as the main ('major') part of the second visit. The second wave

(T2) was a ‘minor’ assessment during which a selection of questionnaires was administered during a two to three hour session.

To ensure it would be possible to test the effects of pubertal development it was important to cover the whole span of pubertal development, ranging from the pre-pubertal stage to the post-pubertal stage. For this reason participants were recruited from two local primary schools as well as a secondary school. Children were not included in the study if they had known dyslexia or limited Dutch proficiency. Children were also excluded if they received any treatment, medical or psychological. However, children whose status changed during the study were retained.

Table 1. Cohort-Sequential Design with Three Data Collection Waves (T1 to T3).

	Primary School			Secondary School						<i>grade age</i>
	4 9/10	5 10/11	6 11/12	7 12/13	8 13/14	9 14/15	10 15/16	11 16/17	12 17/18	
T1 – Major 2006-2007*	C1 n=38	C2 n=44	C3 n=44	C4 n=43	C5 n=42	C6 n=41	C7 n=47			
T2 – Minor 2007-2008		C1	C2	C3	C4	C5	C6	C7		
T3 – Major 2008-2009*			C1	C2	C3	C4	C5	C6	C7	

* Major assessment includes the Leiden PST

All primary school children who complied with the inclusion and exclusion criteria were included in the study. Because the number of secondary school students who wanted to participate exceeded the number that could be included, a selection was made. Secondary school students were selected in such a way to ensure varied educational background of the sample, an equal age and gender distribution, and to ensure it was representative of the whole group with reference to their reported level of social anxiety (i.e., including both low and high anxious youth). For the second research strand within this longitudinal study high anxious youth were oversampled (High Anxious group

n = 32; see Miers, 2009). This additional High Anxious group was not included in the studies in the current thesis. The background variables for primary and secondary school children were similar, e.g. all schools were set in a pre-dominantly middle-class area in the city of Leiden and its environs. Special attention was paid to ensure that the age groups were large enough and included similar number of boys and girls to study both main age and gender effects as well as interactions between gender and age. The final sample used for the current thesis (excluding the High Anxious group) included 299 participants.

The Leiden Public Speaking Task

A crucial element of the longitudinal research project is the Leiden Public Speaking Task (Leiden PST). A public speaking task was selected for several reasons: 1) Most studies that had investigated age differences in social fear had used self-report data and it was unknown whether age differences would also be found in a behavioral assessment task. A public speaking task allows the researcher to collect a wide array of information. In addition to self-report, it is possible to collect physiological and observational data. This way it was possible to study age differences in physical responses and to see whether independent observers reported differences in nervousness. 2) Almost all individuals with social anxiety also fear speaking in public (Lucrebier et al., 2000). Therefore, it was expected that a public speaking task would evoke feelings of social evaluation and that information collected in a speech task would be relevant to better understand social anxiety in general. 3) Finally, there seems to be some accumulating evidence that adolescents are particularly sensitive to social evaluation from peers (Westenberg et al., 2004). Hence, a public speaking task in front of a group of age peers was thought to be particularly sensitive to developmental differences.

However, at the start of the study no public speaking task was available that was suitable for our specific research aims. Subsequently, the Leiden PST was developed specifically for the longitudinal study and designed in such a way that it could be used for the study of individual and developmental differences within a longitudinal design. A detailed account of the Leiden PST which was included in both major assessments has recently been published (Westenberg et al., 2009). For this reason, a short impression is provided below.

The Leiden PST is characterized by two main elements. First, the participants are given ample preparation time. A week before their actual speech participants visited the university for their first assessment. At the end of this visit they were shown the laboratory spaces where the speech would take place and introduced to the researcher who would monitor the session. This was done to familiarize the participants with the setting of the Leiden PST and to minimize anticipatory anxiety due to the unfamiliarity of the surroundings. Furthermore, they were also given instructions about the topic of the speech. The participants were told that they were expected to talk for five minutes about the type of movies they liked or did not like. Participants were also instructed that the task was similar to presentations they had at school and thus should prepare their speech in a similar manner.

The inclusion of an extended preparation time in the design allowed us to study developmental differences with reference to different time points, this is during anticipation to a social situation and during the situation itself. The emergence of abstract reasoning (e.g., Piaget, 1972) might make anticipation to social situations especially sensitive to show developmental changes, resulting in increased anticipatory fears and concerns during adolescence. Furthermore, the fact that the participants knew beforehand what the task comprised, allowed us to use the task multiple times in a longitudinal project. Most public speaking tasks make use of an impromptu speech (e.g., Kirschbaum, Pirke, & Hellhammer, 1993), and such a task is not similar when participants are invited for the second time. Finally, allowing participants to prepare makes the task more similar to a real situation as youth encounter at school.

Second, the Leiden PST makes use of a pre-recorded projected audience of age peers and a teacher rather than a live audience of confederates. The audiences were filmed under supervision of a professional director and the audience members were instructed to show natural but neutral behaviors. The children were allowed to look into and away from the camera, hereby creating the illusion of natural eye contact between the speaker and the audience members. Thus, audience behaviors were fully controlled. The advantage of a standard audience is that for example age effects or individual differences cannot be

deduced to differences in audience behavior. Previous studies from the SAND research group showed that audiences respond differently to for instance socially anxious versus non-socially anxious children, treating the anxious children more negatively (Blöte, Kint, & Westenberg, 2007).

Assessments

In addition to the speech task, the current study included several developmental variables apart from age to study the normative changes in social fearfulness during adolescence. Several other variables were selected for the second strand of the longitudinal project that compared differences between high and low socially anxious youth (see Miers, 2009; Miers, Blöte, Bokhorst, & Westenberg, in press). An overview of the variables selected to study the normal developmental pattern of social anxiety is presented in Table 2. Measures that are included in the current thesis are indicated with a dagger symbol. Data presented were all taken from the first assessment (T₁).

The PhD-project

The first year of the five year graduate research was devoted to working out the details of the study, obtaining permission from the Medical Ethical Committee, recruitment activities and organizing research facilities, e.g. constructing the lab spaces. Much time was taken up by constructing a lab space that would perfectly accommodate the longitudinal research project. The lab space consisted of two experimental rooms and one control room. The presence of two experimental rooms allowed us to run parallel sessions. This way children could choose to come to the university with a friend, which was expected to increase participation rate of more timid youth. Furthermore, to facilitate testing the lab spaces were outfitted with, among others; 1) one-way screens to monitor participant activities, 2) a locally controlled air-conditioning system which kept temperatures constant over all sessions to enhance the quality of physiological recordings, 3) a ceiling-mounted (integrated) projector to minimize projector noise, and 4) a large projection screen to project the pre-re-

corded audience life-size.

Table 2. Overview of Developmental Variables included in Longitudinal Research-Project

	<i>Assessment Time</i>			<i>Chapter</i>
	<i>T1</i>	<i>T2</i>	<i>T3</i>	
Pubertal Development				
Pubertal Development Scale (Petersen, Crockett, Richards, & Boxer, 1988)	*†	*	*	3
Tanner Schematic Drawings (Taylor et al., 2001)	*	*	*	
Psychosocial Development				
Self-Restraint Scale (Weinberger & Schwartz, 1990)	*†		*	5
Resistance to Peer Influence (RPI, Steinberg & Monahan, 2007)	*†	*	*	6
Ego development (SCT-Y, Westenberg et al., 2000)	*		*	
Cognitive Development				
Six Parts Test (BAD5-C, Emslie et al., 2003)	*		*	
Recursive Thinking Measure (Miller, Kessel, & Flavell, 1970)	*		*	
Analogies (DAT, Evers & Lucassen, 1991)	*		*	

† included in current thesis * included at time of assessment

Data collection commenced in the fall of 2005 and will come to a close at the end of 2009. Unfortunately, the project experienced some unexpected delays which resulted in a year's extension of its run. First, the construction of the lab took more time than expected, because the university building was in the process of being remodeled at the same time. Another obstacle was the disappointing number of primary school children from the partner school, which meant that a third school had to be recruited for the project. Because of the delay, the data collection for T₃ was still ongoing at the end of this PhD-project. Hence, the thesis does not report on longitudinal data, but only on the cross-sectional data collected at the first data wave.

Outline of the current thesis

The current thesis consists of two parts. In Part I (Chapters 2 – 4) the main question whether adolescents grow increasingly more fearful of social evaluative situations is posed. Thus, Part I investigated the normative developmental

pathway of social fears and which aspects of social fears are particularly sensitive to developmental change. In addition, a start was made to investigate which aspects of adolescent development might contribute to this phenomenon. In short, do social evaluative fears grow stronger or more salient during adolescence? In Part II the psychometric properties of two measures of psychosocial development were studied.

Part I

Although social fears are thought to be on the rise during adolescence, several studies are available that do not show this increase and in some cases even show a decrease of social fears (e.g., Gullone, King, & Ollendick, 2001, Gullone & Lane, 2002). Chapter 2 reflects on methodological issues that might be part of the reason for these contradictory findings. In this chapter age differences in distress and avoidance were studied. By studying both distress and avoidance it was possible to test the argument posited by Rapee and Spence (2004) that age differences are stronger in life interference (i.e., operationalized as avoidance) than distress. At the same time a comparison was made between different types of social situations. This was done to test whether some situations are more sensitive to developmental differences. Following Westenberg et al. (2004) it was expected that social evaluative situations would show the strongest age differences.

Following the investigation of age differences in self-reported social fears, Chapter 3 investigated developmental differences in subjective and biological stress responsivity. To the best of our knowledge no (longitudinal) studies were available that investigated increased stress responses in a large community sample of adolescents with a social evaluative stressor allowing the differentiation between anticipatory responses and responses to the task itself. It was expected that the increase in social fears observed during adolescence would result in stronger physical responses during a social stressor. Because earlier studies showed that adolescents might be particularly sensitive to social evaluation by peers, a speech task in front of age peers (see Leiden PST above) was employed to measure their stress responses. In addition to age, this chapter investigated the contribution of pubertal development to social fears.

Because only little is known about how adolescents experience public

speaking, Chapter 4 focused on how adolescents experience public speaking situations. The chapter discussed the public speaking experience in general and investigated whether age differences could be exposed in these experiences. These age differences might possibly elucidate the increased fear of social evaluative situations. In order to capture the whole spectrum of thought, beliefs, concerns and cognitions that might be important for adolescents closed ended questionnaires were complemented with an interview. Therefore, the study allowed us to investigate both qualitative and quantitative age differences in the public speaking experience.

Part II

Although much attention has been paid to the possible role of puberty in the increase of social fears (e.g., Thompson & Goodvin, 2005), it was deemed important to include additional developmental variables when studying the development of social fears. Only few instruments were available in Dutch to assess psychosocial development. For this reason the Self-Restraint Scale (Weinberger & Schwartz, 1990) and Resistance to Peer Influence Scale (Steinberg & Monahan, 2007) were translated into Dutch and their psychometric properties were investigated. Both constructs are central elements of Cauffman and Steinberg's (2000) model of psychosocial development.

It is important to note that psychosocial development is multifaceted and develops at different speeds. Self-restraint has different aspects and possibly different relationships with social fear. For example, self-restraint includes consideration of others, which Cauffman and Steinberg (2000) reported to improve from grade 8 to adulthood. It was expected that youth who report high levels of consideration of others might be more sensitive to experience social fears. Second, resistance to peer influence was expected to show a temporary decrease during mid-adolescence, making adolescents particularly sensitive to peer opinion (Steinberg & Silverberg, 1986). Thus, the developmental pattern of resistance to peer influence could contribute to a temporary experience in social fears.

Due to the unexpected delays as described above, the longitudinal data collection was ongoing by the end of this PhD project. Therefore, it was not yet possible to investigate the contribution of the different maturational variables (including the psychosocial developmental variables) to the normative developmental pattern of social fear within the current thesis. In Part II of the thesis,

however, an account was given of the development and psychometric properties of self-restraint (Chapter 5) and resistance to peer influence (Chapter 6) measures. In the near future the relation between those two instruments and social fears can be studied.

