

Gradual Increases in Americans' Tolerance of Free Expression, 1972-2004

Abstract

Five Stouffer Free Speech attitude items are tracked from 1972 to 2004 in the NORC General Social Survey with these main results: (1) Tolerance for all five items increased, throughout the period, though very slowly, (2) The trends are highly linear and become less polarized with time, (3) The hypothesis that these items are merely indirect measures of attitudes toward the targets is not supported, though attitude items play a major role, (4) The trends can be divided into two parts: (a) a long term linear process of increasing education and cohort replacement producing greater tolerance across the five items (b) Controlling for cohort and schoolings, a period process with effects that are generally small, less linear, and mostly negative, (5) A separate question on pornography, while following these broad conclusions, shows little effect of respondent education, (6) A procedure for determining the relative slope magnitudes of cohort and age effects shows the cohort slope to be stronger for all five tolerance items.

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Introduction

The second half of the twentieth century saw a definite increase in tolerance when measured by willingness to allow expression of unpalatable ideas. Table 1 summarizes.

(Table 1 here)

This series began with Samuel Stouffer's landmark 1954 national probability sample (Stouffer 1954). His items are in the now classic form, "Would you allow a (person with unpalatable idea¹) to (form of public expression)?" Calling the former "targets" and the latter "venues," the 1954 results in Table 1 have two targets:

Atheist = "somebody who is against all churches and religion"

Communist = "a man who admits he is a Communist"

and three venues:

College = "Suppose he is teaching in a college, should he be fired or not?"

Speech = "Suppose (target) wants to make a speech in your community, should he be allowed to speak or not?"

Library = "Suppose he wrote a book which is in your public library. Somebody in your community suggests the book be removed from the library. Would you favor removing it or not?"

Beginning in 1972, the NORC General Social Survey, an annual/biennial, face-to-face interview, area- probability sample of English speaking American householders 18 years old and older,² replicated these items.

¹Stouffer's wording: people whose ideas are considered bad or dangerous by other people.

² GSS response rates (AAPOR RR5) ranged from .70 to .82 with a median of .76 Except for Table 1, the analyses reported here are on GSS data weighted: (a) by total adults in household to make the sample representative of individuals, not households (b) to correct for deliberate over-

In 1973 the GSS added a third target:

Homosexual = “a man who admits he is a homosexual”³

and in 1976 two more:

Militarist = “a person who advocates doing away with elections and letting the military run the country”

Racist = “a person who believes that blacks are genetically inferior”
(African Americans are excluded from tabulations for this item in this report)

All 15 items in Table 1 show greater tolerance in 1974 than 1954 and greater tolerance in 2004 than 1974. The pattern is clear and upcoming analyses will not threaten the broad conclusion: increasing tolerance throughout the last half of the twentieth century. Nevertheless, important qualifications and complications will emerge.

In the remainder of this report I will consider:

- (1) Do the trends have any particular shapes and if so, what are the implications for understanding the process?
- (2) Are the trends merely due to changing palatabilities of the targets?
- (3) Can Stouffer’s original predictors - Age and Education – re-interpreted as Cohort Replacement, explain the trends?

samples of African Americans in 1982 and 1987 and to adjust for design improvements in 2002 and 2004. No correction has been made for cluster sampling, although design effects are typically around 1.5. Where relevant, I report t values which the reader can use to make adjustments. Choosing consistency over precision, I used $t=3.0$ as my personal cutting point rather than the conventional 2.0. Because of the large sample size, virtually any difference discussed here is highly significant.

³ For the venue “library,” the wording is, “a book he wrote in favor of homosexuality.” The intention was to imply the book is not “pornography” itself but advocacy of it. The question of trends in attitudes toward pornography per se will be dealt with separately.

(4) Have other demographic changes contributed to the trends?

(5) Is pornography an exception?

Patterns of Change

For a simpler and more reliable measure, I recoded the items (originally scored 1-2) to 0 and 100, i.e. as percentages with 100 as more tolerant and averaged across the three venues for each target giving five indices⁴:

Tolath	(Atheist)
Tolcom	(Communist)
Tolhomo	(Homosexual)
Tolmil	(Militarist)
Tolrac	(Racist - Black respondents excluded)

Table 2 reports the regressions of GSS Year on the five indices.

(Table 2 here)

The t values (row 5) indicate a significant linear slope for each of the five measures. The raw slopes (b 's) necessarily are small absolute numbers, even when transformed to percentages e.g. .517 for Tolath. For easier reading, I multiplied each by 10, which changes them to "percentage points per decade." Thus, the +5.17 for Tolath (row 6) says the tolerance regression line increases at the rate of about five percentage points per decade.. Even after this adjustment, these are pretty small numbers; the largest, +8.58 for Tolhomo, indicates tolerance of homosexuals increased at the rate of less than ten points per decade. True, but small linear

⁴ Alternatively one could aggregate across targets within venues giving five item scales for College, Speech and Library. The three slopes turn out to be quite similar, indicating the rate of change was similar across venues.

changes add up. Multiplying the original 8.58 for Tolhomo by the 3.2 decades from 1972 to 2004 gives 27.456, a fairly impressive 27-point increase in tolerance of homosexual expression during the GSS years. Even the smallest slope, Tolrac, gives a total increase of 6 points. In sum, while surveys only a few years apart are unlikely to capture these change in tolerance, long term monitoring shows reliable and mostly non-trivial increases in tolerance during the last quarter of the twentieth century. Table 3 summarizes the cumulative impact of these regression slopes.

(Table 3 here)

The total linear increases range from 6 (Tolrac) to 25 (Tolhomo) percentage points during the last quarter of the twentieth century.

Mathematically, least squares lines are the “best” straight lines, but this does not mean they are “good” conceptual models of what happened, as the straight line could march through wildly oscillating data points. As is well known, though often forgotten, non-zero linear regression slopes are not evidence for linearity. The issue is substantive as well as technical. Bumps and bends in the trend lines, if unexplained by sampling fluctuation, suggest “period” effects (e.g. the collapse of communism, increasing right wing attacks on homosexuality, the destruction of the World Trade Center) while straight lines suggest long term processes such as demographic replacement (Davis 2001, Stinchcombe 1968).

The standard methods for assessing linearity involve curve fitting, transformations, and/or adding exponents to the equations. For a simpler and perhaps more intuitive method, I: (1) saved the predicted raw values from the above regressions - i.e. the “hat” values estimating tolerance from the interval level variable YEAR (2) constructed a set of eleven 3-year-interval

dummy variables for years⁵ (3) regressed the five tolerance indices on the dummies and saved this second set of predicted values (4) ran the correlations between the two sets of predictions, straight line and dummy variable.

The rationale: In the dummy variable regressions, the predicted values are simply the means for the dependent variable in each of the 11 year groups. This in no way forces any form on the relationship; the predictions can bounce around wildly from year to year if the actual function is complex. If, however, the empirical function is a straight line, the dummy variable predictions will match the linear regression predictions⁶. The simplest test would be to compare the linear Beta's with the dummy variable R's. (rows 7 and 8 in Table 2) The greater the difference, the less well the data are described by a linear function. Even better, one may run the correlation between the two predictions. High positive correlations are suggestive of linearity, that is, a straight line gives a good description of the means. Figure 1 illustrates with a highly linear relationship between age and self-rated health ($r = +.962$), a basically monotonic but not very linear relationship between age and "never married" ($r = +.745$), and the distinctly curvilinear relationship between AGE⁷ and family income per adult ($r = +.179$).

⁵ The years are 72-74, 75-77, 78-80, 81-83, 84-86, 87-89, 90-92, 93-95, 96-98, 99-01, 02-04.

⁶ The cut points for linearity-nonlinearity are up to the analyst. My experience has been that a correlation of $+0.90$ or higher says the relationship is linear for all practical purposes. At the other end, a correlation of less than $+0.70$ means that less than half the variance in the dependent variable is coming from a linear effect of the independent variable. Decisions in the intermediate range are very much a matter of personal judgment.

⁷ I will follow the convention of using CAPITALS when referring to the code book mnemonics of specific GSS items (e.g. YEAR) and lower case when referring to recodes.

(Figure 1 here)

The bottom row in Table 2 gives the linearity correlations for the tolerance indices. They range from +.773 to +.971, and three of the five are +.950 or higher. One notes that the two below .90 are the two with “right wing” targets. These correlations seem high, and thus suggest steady increase in tolerance, but are they unusually high for attitude trends? It is hard to say, but some results in Table 6 (below) are suggestive. As will be explained later, I found 16 GSS items that seemed to tap the palatability of the various targets. Their linearity correlations appear in the eighth column from the left (“Lin”). Only one of the 16 correlations is +.900 or larger, and the median is +.642. My conclusion: the tolerance trends “really are” linear to a degree that is not typical of GSS attitude items.

Linearity in 1972-2004 does not guarantee **perpetually** straight lines. Table 4 shows this clearly by “retro- dicting” the 1954 Stouffer results from the 1972-2004 equations. In every case the 1954 results are 9 to 28 points below the regression prediction. Was 1954 a lone outlier or are the 1900-2004 trends non-linear? Further analysis requires data between 1955 and 1972 and before 1954, which seem to be non-existent, to the repeated frustration of tolerance scholars.

(Table 4 here)

So far we have been talking about trends in means for percent tolerant.⁸ In recent years,

⁸ Methodologically sophisticated readers may bristle at the use of OLS for 0-1 variables. I consider the issue debatable, not one of heresy. For a defense of OLS in trend analyses, see note 9 in Davis, 2004.

survey analysts have come to also consider variation around these means, i.e. “polarization,” especially since so many of the data results fail to match the conclusions of journalists and popular observers (Dimaggio et al 1996; Evans 2003; Fiorina, Abrams and Pope 2006; Kriner 2006; McCarty et al 2006.).

A straightforward approach is to find the variance of each item each year⁹ and run them against YEAR.

Table 5 shows the polarization results for the five tolerance indices.

(Table 5 here)

The top half of Table 5 shows all five trends (Tolrac may be an exception) de-polarizing. That is, negative correlations between YEAR and variances of the indexes. Inspection of the graphs shows a clear-cut downward trend for four trends when variances are plotted against YEAR. The fifth item, Tolerance of racist expression, however, has a distinctly lower correlation, -.408, which is not significant at an N of 17. Tolerance of racists (among whites) does show the same statistical and graphic pattern as the other tolerances but with much weaker magnitude (more fluctuation around the trend line). The bottom half of Table 5 zooms in closer. Since each

⁹ Three technical matters: (1) One could use either the mean or variance as dependent. I chose variance because it “gives greater polarization a better chance” (2) N here drops from 40,000 or so to 18-21, although this is highly conservative as each “point” actually stems from hundreds or thousands of cases and is quite reliable. (3) The analysis is not appropriate for 0-1 variables, as their mean and variance have a built-in relationship. The tolerance indexes, although built from 0-1 items, have a 3 point range - 0 for all three intolerant, 1 for mixed, and 2 for all three tolerant.

tolerance index is the mean on three 0-1 questions, each can be divided into three variables: all-tolerant v. other, all-intolerant v. other, and mixed v. not mixed. The numbers in the bottom three rows of Table 5 are the raw slopes (percentage points per decade) and the pattern is clear. During the GSS years, “all-tolerant” increased while both mixed and “all-intolerant” decreased. Depolarization was not a disproportionate increase in the wishy-washy middle but a compression of the scales toward the tolerant end. When we get to schooling we will again see striking depolarization. Since schooling is highly predictive of tolerance, this may explain the depolarization trend for tolerance. The shrinking of the proportion of very poorly educated may reduce the proportion giving all negative responses.

To summarize:

During the 32 GSS years Americans moved slowly but steadily toward a pro-tolerance position regarding anti-religious advocates, communists, homosexual spokespersons, and anti-democratic militarists. In addition, the surveys showed a statistically discernable but substantively trivial increase in tolerance of racist expression among whites. The increasing means were accompanied by movements toward consensus, measured by decreases in the within-year variances of the indices.

The Palatability Problem

The Stouffer approach to measuring tolerance assumes negative attitudes toward the target (After all, one would not ask, “Would you allow your best friend to give a speech in your community?”) From this come two issues:

(1) Do changes in tolerance merely reflect variations in palatability of the targets? For example, the series in Table 1 begins at a peak of the cold war and concludes after the evaporation of Russian communism. It is no wonder that Americans in 2004 are less upset by communist library books.

(2) Because the targets are not a representative sample of any content universe, they can be (unconsciously) chosen in such a way as to bias conclusions about correlates and predictors. To be specific, critics have argued that the original Stouffer targets - atheists, communists, and socialists - are more palatable to “liberals” than “conservatives” and hence lead us to overestimate the tolerance of relatively liberal groups such as the highly educated, northerners, and urbanites.

Taken to the extreme, these considerations suggest that the Stouffer approach is severely flawed. Sullivan (1979) makes such a case and goes so far as to suggest substituting “the group you like least” for any and all Stouffer targets. He argues that his own measure shows little change from 1954 to the 1970s, quite unlike Table 1. This interpretation has met with considerable acceptance. Bishop (2005, p. 89), for example, states flatly, “Sullivan , Pierson, and Marcus (1979) demonstrated that a seemingly dramatic increase of American tolerance of groups such as Communists, Socialists and Atheists over a twenty- to twenty-five year period was mostly an illusion.”

With these issues in mind, the GSS dropped “socialist” (no longer salient) beginning in 1975. In 1973 it added a “right wing” target **Militarist**, a person who advocates doing away with elections and letting the military run the country and in 1976 another right wing target **Racist** , “a person who believes that blacks are genetically inferior.”¹⁰

¹⁰ The different starting points for the new items create a minor technical problem. When the independent variable is YEAR, its standard deviation will vary with the time span and consequently inflate or deflate any standardized (Beta) correlation between Year and a dependent variable. Where relevant I have reported both raw and standardized coefficients and also adjusted all tolerance items and scales to a percentage per decade metric.

Homosexual was added in 1973 because of its topicality.

I explored this palatability problem two ways, through reliability analysis, and through correlations between targets and palatability (attitude toward the target itself).

From a reliability point of view, if the items are merely functions of target palatability and if the targets are ideologically diverse, the items should act as if they are measuring different constructs, not the same construct. Conversely, if the items are tapping a generalized tolerance, they should hang together statistically. The 15 items (3 venues x 5 targets) gave a Cronbach's Alpha of $+0.914$, and all show positive bivariate inter-item correlations ranging from $+0.274$ to $+0.626$. Each of the fifteen has a positive item-to-total score and reduces Alpha when deleted from the trial scale. Since the items are almost inter-changeable psychometrically, the extreme claim that the measures are strict functions of target choice does not hold up.

Although reassured by these results, common sense argues that the tolerance items can not be totally insensitive to target palatability. Hence a second test of the palatability hypothesis: To the extent that Stoufferian tolerance is only a function of target palatability, a tolerance index should be highly positively correlated with specific measures of that target's palatability and poorly correlated with palatabilities of other targets.

To proceed, I looked for items which seem likely to be endorsed by those who find the target tolerable - thus, one would expect that non-religious people would be more tolerant of "atheists" - if the hypothesis is correct. Where necessary, I reversed polarities so a positive score

indicates sympathy for the target. Here are the items I chose:

Atheist

ATTEND = frequency of attendance at church services

RELITEN = intensity of religious commitment

Communist.

COMMUN = attitude toward Communism as a form of government

Homosexual

HOMOSEX = how wrong is homosexuality

Militarist

CONARMY = confidence in military leaders.

NATARMS = is defense spending too little....too much,

Authority (OBEY minus THINKSELF) = rank of “to obey” minus rank of “to think for him or her self” as values for a child

Racist

RACDIF2 = race differences are due to blacks’ inborn disability

RACDIF4 = race differences are due to blacks’ lack of will power

RACMAR = should racial inter-marriage be outlawed

RACPUSH = (Negroes/blacks/African Americans) shouldn’t push themselves where they are not wanted

RACSEG = White people have the right to keep (Negroes/blacks/African-Americans) out of their neighborhoods

I also added four gender role items which do not involve free expression of unpalatable ideas. If the hypothesis is correct, they should not show nontrivial correlations with any of the tolerance indices.

FEHOME= women should take care of running their homes and leave running the country up to men

FEPOL= men are better suited emotionally for politics than are most women

FEPRES= would you vote for your party’s presidential nominee if she is a woman

FEWORK= approve married woman working if she has a husband who can support her

The GSS does not contain any obvious measures of sympathy for a military dictatorship. As noted above, the best I could come up with were two items on sympathy toward the armed forces and a “child values” item that seems to tap authoritarianism.

Table 6 gives details on the items and Table 7 bivariate correlations between palatabilities and tolerance indices. In Table 7 the **bold face** entries occur where target and palatability match.

(Table 6 here)

(Table 7 here)

A strict version of the palatability hypothesis requires strong positive correlations between relevant palatabilities and specific tolerance indices and zero correlations elsewhere. A weaker form would require that correlations in bold face in Table 7 be positive and stronger than others in the same row and column.

Neither form of the hypothesis fares well.

(1) In no case is the bold face correlation both positive and the strongest in its row and column. Thus, tolerance of homosexuals is predicted better from RACMAR than from HOMOSEX. For Tolath, ten items (COMMUN, HOMOSEX, OBEY, RACDIF2, RACMAR, RACPUSH, RACSEG, FEHOME, FEPRES, and FEWORK) show positive bivariates larger than the two religious items.

(2) More telling, for two of the five tolerance indices the signs are wrong. Pro military and authoritarian respondents are less tolerant of militarists; racist respondents (among whites) are less tolerant of racists! While this gives ammunition against those who say social science only documents the obvious, it is not obvious what to make of the finding. The best I can do is this:

**Liberals on social issues are more tolerant of
free expression, whatever the topic.**

For a more concise summary I created a “General Liberalism” index of nine palatability items

(HOMOSEX, PREMARSEX, ATTEND, RELITEN, NATARMS, RACMAR, RACPUSH, FEPOL, FEWORK, plus a pro-abortion index, the mean of ABDEFECT, ABHLTH, ABNOMORE, ABPOOR, ABRAPE, and ABSINGLE.)¹¹

Table 8 displays the bivariate correlations between the General Liberalism index, the five tolerance indices and a sixth tolerance index (Tolsum), the mean over all fifteen tolerance questions. Correlations range from +.305 (Tolrac) to +.516 for Tolsum.

Table 8 makes the main point of this section;

A heterogeneous collection of liberal positions on social topics is as good a predictor of expression tolerance or better than is an item specific to the palatability of that target.

The belief that the Stouffer tolerance items are merely indirect measures of specific palatabilities is simply not supported by the 1972-2004 GSS.

Demographic Variables

In the famous Chapter 4 of Communism, Conformity, and Civil Liberties, Stouffer speculates on future trends in tolerance, mentally weighing the liberal effects of increasing education against the conservative effects of “aging”(Stouffer 1954, pp. 107-108). His analysis thus falls under the “demographic theory of change” rubric (Davis 2001, 2004; Stinchcombe 1968).

¹¹ Priority was given to items with longer time span in the data set. All except PREMARSEX (How wrong is pre-marital sex?) are defined in Table 5. Military and Race items were reversed, so that for all ten, higher positive scores means more liberal. African-Americans are included in all items. The index is the mean of the standardized scores of the items. Respondents with fewer than 7 answers are excluded. The scale has an alpha of +.629 and all item-to-total correlations are positive. N=23,185. The scale items span 1974-2002.

I will argue his analysis is both “right” and “wrong,”

Starting with age:

At the time of Stouffer’s writing, the now familiar Age/Period/Cohort identification problem (Glenn, 1974) was not well recognized. Since Stouffer’s survey took place in just one year (1954), the variable he called age might just as well be called birth cohort since age and birth cohort are perfectly confounded within a particular period (year). Contemporary analysts mostly agree that cohort effects on attitudes are generally in a “liberal” direction, which cast doubts on his assumption that the variable he calls “age” and education have opposite effects. .

I will treat this Janus variable as cohort, not age.

The reasoning is this: there is a big difference between a predictor variable influencing an individual’s tolerance (it has to be correlated with tolerance) and it influencing changes in mean tolerance (it has to be correlated with tolerance and with period /year). In slogan form, this classic principle of linear analysis goes, “It takes two to tango.” Age may or may not influence tolerance - researchers disagree¹² - but age is barely correlated with year in the GSS 1972-2004. Despite popular impressions of an aging population, the r for age and year in the GSS 1972-2004 is +.0243, statistically significant ($t = 5.2$) but trivial in magnitude. If the mean age is not changing¹³, aging can not produce the trends we have seen. COHORT, on the other hand, has a bivariate r of +.475 with YEAR which is strong enough to produce nontrivial change in tolerance if cohort is

¹² Harding and Jencks present evidence that age has a conservative effect on premarital sex attitudes in the GSS (Harding and Jencks, 2003)

¹³ Age did change during the GSS Years as the baby boomers moved into middle age. This, however, did little to move the mean age.

related to tolerance.

The second Stouffer predictor is education (EDUC = school years completed 0 to 20). I added parental education (Pared = mean of mother's and father's years of schooling) since the demographic theory of attitude trends assumes attitudes tend to be fixed in adolescence and thus sensitive to parental influence. Stouffer, of course, was hardly alone in documenting the strong relationship between education and tolerance (See Hyman and Wright 1979; Inkeles and Smith 1974; Nie, Junn and Stehlik-Berry 1996; and Nunn, Crockett and Williams 1988.)

In the GSS, the bivariate correlation between YEAR and EDUC is +.219 and its polarization is -.851. For Pared, the correlation with YEAR is +.227 but its polarization is a smallish: -.298.

Table 9 gives the key results of this demographic approach. It may be read like this, using Tolsum (combined tolerance indices) as an example. Reading from left to right...

(Table 9 here)

Regression I is simply the trend - the correlation between the tolerance index and Year- as per Table 2. The trends (Pearson correlations for tolerance index and YEAR) are all positive and range from +.041 to +.195.

Regression II is the regression of tolerance on YEAR and COHORT (birth year). The differences for the YEAR coefficient between I and II are striking. Controlling for COHORT, the YEAR correlations shrink to triviality. In Lazarsfeldian terms, COHORT explains the correlation between YEAR and tolerance. In fact, with one exception (Tolhomo), COHORT acts as a suppressor variable; because when it is controlled, the trend correlations shift from positive to negative.

The net regressions for Year (regression V) , albeit small, have t values larger than 2.0 in all cases and larger than 3.0 in four of six. These small negative trends are of considerable interest since they are our best measure of Period (within Cohort) effects. The inference is, save for tolerance of homosexual expression, the GSS years themselves produced slight declines in tolerance. These period effects, however, were more than offset by the positive impact of cohort replacement, so the overall movement was toward greater tolerance.

Reading across the top line of each table, the further additions of Parental Education (III), EDUC (IV), and General liberalism (V) have little effect on change (YEAR) once birth cohort is controlled. It would seem that whatever is producing these period effects is something other than the classic Stoufferian correlates.

Regressions II through V in Table 8 treat the impact of the predictor variables (Pared=III, EDUC=IV, General liberalism=V). I read them as follows:

a) Comparing the COHORT coefficients in regressions II and V tells us how much of the Cohort effect comes from generational differences in education and general liberalism. In the case of Tolrac (tolerance of racist expression), the Cohort effect vanishes when they are controlled; in the other cases, roughly half of the cohort effect remains unexplained.

b) As usual, formal education increases tolerance net of COHORT and General Liberalism. Although the partial coefficients are not very large, parental education contributes to tolerance, holding constant the respondent's own education.

c) In each case, General Liberalism has the strongest partial coefficient (Regression V). Table 10 pits schooling against general liberalism. It shows the standardized partial regression coefficients for general liberalism and the two schooling measures combined (by regressing

tolerance on both and saving the predicted values as a single variable). In each case liberal attitudes have the larger impact, but the non-trivial schooling coefficients (+.145 to +.247) support the hypothesis that schooling promotes tolerance per se, not just liberal positions on issues.

In sum:

The positive trend in Tolerance during the GSS years is solely due to the replacement of older, less generally liberal, less well-educated cohorts by more generally liberal, better educated generations- a definitive answer to Stauffer's conjecture. Conversely, relatively little seems to have happened within the last quarter of the twentieth century to increase tolerance of free expression, and what small period effects turn up suggest decreased tolerance, save for Homosexual expression.

The Two Processes of Change

Regression II in Table 9 is the key theoretical finding of the analysis. In the methods text sense, the demographic variables explain the increased tolerance - when they are controlled, tolerance no longer shows increases. Putting it another way, Table 9 implies tolerance trends can be divided into two distinct processes: (a) a long term linear increase in tolerance produced by cohort replacement and (b) Period (within cohort) effects which, from 1972-2004, seem to be somewhat negative.

To explore this dualism, I created pairs of variables for each Tolerance index:

(1) tolerance predicted from COHORT, Pared, EDUC, and General Liberalism (TolAthHat, TolComHat, TolHomoHat, TolMilHat, TolRacHat (2) the saved residuals from the predictions (TolAthRes, TolComRes, etc.). The first may be considered the "cohort effect," the second the "within cohort" or period effect. Table 11 compares the two processes:

(Table 11 here)

The two sets of variables behave differently. The “Hat” versions are much more linear and have larger betas than in Table 2. The “Res” (Period) variables are of doubtful linearity (no linearity correlations above +.836) and show small negative slopes save for TolHomoRes. The table documents the notion that during the GSS years the overall increase in tolerance conceals two conflicting processes, a Cohort process producing a strong steady increase in Tolerance and a Period process which seems to signal a slightly negative decline in tolerance. (Four of five t’s exceed 3.0). This pattern is reminiscent of Stimson’s seminal analysis of “policy mood” (Stimson 1991), but the timings and items don’t match.

Figure 2 illustrates a typical pattern.

(Figure 2 here)

Demographics are not limited to Cohort and Education. Table 12 summarizes the changes in the standard demographics during the GSS years. Cell entries are the bivariate correlation between YEAR and the demographic. In the cases of religion, marital status, city size/type, region, and race, the variable was transformed into a set of dummy variables and the cell entry is the multiple correlation (**multi-correlation or multiple correlations??**) between YEAR and the dummy set.

(Table 12 here)

Seven of the entries have magnitudes smaller than Tolsum and two are very close, which makes them unlikely explainers according to the “two to tango rule.”

Table 13 summarizes the effects of the various demographics. The cell entries state how much the demographic reduces the correlation between Tolerance and YEAR. For example,

Tolsum has a bivariate of +.147. When REGION is entered into the regression, the YEAR coefficient becomes +.143. Since $+.147$ minus $+.143 = +.003$, changes in REGION add .003 standardized regression units to the increase..

Save for Education (respondent's plus parental), none of the 24 numbers at the bottom of Table 13 exceeded .016, which is very small when compared to the -.066 to -.113 for schooling.

In short, changes in Marital Status, Religion, City size/type and Region contribute virtually nothing to the increase in Tolerance during the GSS years. While the magnitudes are trivial, it is interesting that all entries for the bottom row (Region) are positive. To a tiny degree, demographic changes during the GSS years saw more Americans in the less-tolerant regions.

A Note on Pornography

Quite separate from the Stouffer battery, the GSS routinely asks a question about tolerance of pornography "Which of these statements comes closest to your feelings about pornography laws?" (20 data points between 1973 and 2004, N=27,909)

- 1) "There should be laws against the distribution of pornography whatever the age." (40%)
- 2) "There should be laws against the distribution of pornography to persons under 18." (55%)
- 3) "There should be no laws forbidding the distribution of pornography." (5%)

Recoding so responses 2 and 3 = 100 and response 1 = 0 gives a tolerance item (Tolporn) logically similar to the Stouffer measures but with quite different wordings. Trends in tolerance of pornography are of intrinsic interest and allow us a crude check on possible wording effects.

Skipping over the details, Table 14 summarizes.

(Table 14 here)

In the main, Table 14 looks like the results in Table 9 with some interesting differences. First, the multiple correlation for the five predictors (.404) is smaller than any in Table 9 save TolRac. Second, the suppressor effect for COHORT is much stronger. While the bivariate for YEAR and TolPorn is a small .034, when COHORT is controlled, the coefficient becomes -.10, considerably stronger than those for the “Res” variables in Table 11. Thus the period effect (less tolerance of pornography) is stronger than the cohort effect (slightly increased tolerance). In sum, Tolrac, Tolmil, and Tolporn show much smaller increases than Tolath, Tolcom, and Tolhomo, although all six seems to have much the same causal structure.

The pornography variable provides another nail in the coffin of the palatability hypothesis as the correlation between TolPorn and having seen an X-movie within the year is +.029. Similarly, if one combines four sex norm items (PREMARSEX, TEENSEX, HOMOSEX, XMARSEX) into a simple index, the correlations between the index and TolPorn is +.025.

Perhaps the most interesting difference between Pornography and the Stouffer items is the weak effect of respondents’ education. It is statistically reliable ($t = 1.4$), and its magnitude, -.012, is virtually nil. To my knowledge, this is the only “socially liberal” item ever to show a negative correlation with schooling.

Relative Slope Sizes: Age and Cohort

While it is well known that it is impossible to estimate the three linear slopes, Age, Period, and Cohort, simultaneously (Glenn 1976), one may run any pair of them against a

dependent variable and obtain partial slopes. What is less well-recognized is that these two-predictor runs have identification problems of their own:

When predicting from Age and Cohort, Age and Period, or Cohort and Period with one predictor controlled, the other is inexorably confounded with the third.

That is:

With Age controlled, Cohort and Period are inextricably confounded.

With Cohort controlled, Age and Period are inextricably confounded.

With Period controlled, Age and Cohort are inextricably confounded.

In other words, when one is controlled, the coefficient for the other is actually the sum of two slopes, only one of which can be named. Table 15 lays out the possibilities.

(Table 15 here)

At first glance it would appear that merely reading the coefficient and sign for setup 6 would tell us whether the net slope for Cohort is larger or smaller than the one for Age. Alas, it is not quite that simple. The differences here are signed. Thus if the Cohort coefficient is +.333 and the Age coefficient is also -.333, the coefficient in setup 5 will be $+.333 - (-.333) = +.666$, although the magnitudes are actually identical.

Note, however, that if we calculate the absolute difference (i.e. ignoring signs), we will get 0.00 since the slopes are identical in magnitude. Furthermore, in practice we will not get identical answers for 1 and 2 or 3 and 4.or 5 or 6, though they will be close. Hence this simple rule for the absolute difference between Cohort and Age slopes:

$$\text{Setup} \quad \frac{\text{abs1} + \text{abs2} - \text{abs3} - \text{abs4}}{2}$$

Consider Tolath, for example: the four coefficients are +5.50, 5.30 (mean =5.40), -1.44, -1.529 (abs mean = 1.48). Since $5.40 - 1.48 = 3.92$ we can say the cohort effect on Tolath is stronger. A proper significance test for the difference would be daunting as one would have to

consider design effects of each dependent variable, weights for the total sample, double estimates of each coefficient and lack of independence (since all four calculations use the same cases). I use the “addition theorem for variances” as a quick and dirty decision rule (square each of the four coefficients and sum them). The square root of the sum is a rough estimate of the standard error of the difference. Table 16 shows the results when the procedure is applied to the tolerance measures and five other examples.

(Table 16 here).

The first six lines are consistent with the interpretations of the essay: In each case the COHORT partial slope is stronger than the AGE slope. The closest to an exception is TOLRAC with a borderline Z of 1.9. Common sense suggests the cohort slope is positive, although this does not follow from these calculations.

Tolerance of pornography, on the other hand, shows a stronger slope for Age than Cohort, confirming the impression that it is not just “another Stouffer type item.”

The bottom of Table 16 displays a small exercise in construct validity. As “common observation” suggests, self-reported Health and Marital Status=Widowed show stronger Age than Cohort slopes while Parental Education, Farm residence at age 16 and number of siblings show stronger Cohort effects, as expected.

One must grant that the method is extremely primitive: it gives no information on signs of age or cohort slopes or even the magnitude of period effects and requires replication designs. On the other hand, to my knowledge this is the only approach that draws any conclusions from APC data without outside information. Thus, for instance, it can inhibit elaborate speculative interpretations of the Aging process when the data show Cohort replacement to have a stronger

effect.

Conclusions

- 1) The Stouffer items do measure tolerance of ideological expression, not merely attitudes towards the targets.
- 2) Tolerance items, unlike political items, change very slowly and in a linear fashion, as suggested by Stimson (2004, pp. 35-36).
- 3) The main mechanism of tolerance change is cohort replacement.
- 4) Increased education and educational background contribute strongly to the trend while changes in marital status, religious denomination, city type, and region do not.
- 5) The linearity of the relationship between education and tolerance measures suggests that tolerance is not learned in specific classes (e.g. eighth grade civics).
- 6) The “demographic theory” of social change would predict further slight increases in tolerance since young Americans who formed their opinions 1972-2004 were exposed to a more tolerant social climate than their predecessors.

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TABLES TO ACCOMPANY
Gradual Increases in Americans' Tolerance of Free Expression, 1972-2004

1. Percent Giving More Tolerant of Two Responses
2. Regressions of Year on Tolerance Indices
3. Percent Giving Tolerant response as Predicted from Linear Regression Equations
4. "Predicting" 1954 Results from 1972-2004 Regressions
5. Polarization Measures
6. "Palatability" Measures
7. Bivariate Correlations (r) Between Palatability Items and Tolerance Indices
8. Correlations (r) between General Liberalism Index and Tolerance Indices
9. Major Correlates of Trends in Tolerance
10. Impacts on Tolerance: Schooling versus Liberal Attitudes
11. Cohort and Period Trends in Tolerance
12. Trends in Basic Demographics, 1972-2004
13. Selected Demographic Effects on Tolerance Trends
14. Correlates of trends in Attitude Toward Pornography
15. Effects with two APC predictors
16. Illustrative Age versus Cohort Results

Table 1.
Percent Giving More Tolerant of Two Reasons
(US Adult Householders 1954-2004)

Item	1954	1964	1974	1984	1994	2004
College						
Atheist	12%		44	47	55	66
Communist	6		44	49	58	66
Homosexual			54	60	73	80
Militarist				42	49	54
Racist				42	47	49
Library						
Atheist	37		62	66	71	73
Communist	29		61	62	68	71
Homosexual			58	61	71	74
Militarist				60	66	69
Racist				67	70	68
Speech						
Atheist	38		38	69	74	77
Communist	28		28	61	69	70
Homosexual				70	82	83
Militarist				57	66	67
Racist*				59	65	64
*Black respondents excluded						
Unweighted Case Base						
Max.	4933		1617	1459	1906	867
Min.	4664		1539	1263	1636	754

Table 2.
Regressions of Year on Tolerance Indices
(GSS 1972-2004)

	Tolath	Tolcom	Tolhomo	Tolmil	Tolrac*
Span	72-04	72-04	73-04	76-04	76-04
Data Points	21	21	20	18	18
N	28,600	27,994	26,768	23,730	22,102
Mean (% Tolerant)	62.30%	58.90%	67.90%	56.20%	59.00%
	Regressions				
t	21.6	24.3	32.6	18.3	6.1
Percentage points per decade	5.17	6.12	8.58	6.03	1.98
B (standardized coefficient)	0.127	0.144	0.195	0.118	0.041
R (dummies)	0.131	0.148	0.199	0.123	0.048
"linearity"***	0.971	0.962	0.97	0.9	0.773

*African Americans excluded

** Correlation r between predicted scores from B and R.

Table 3.
Percent Giving Tolerant Response As Predicted From
Linear Regression Equations

Target	1972	2004	Increase
Tolhomo	56	81%	25
Tolcom	50	69	19
Tolath	55	71	16
Tolmil	49	65	16
Tolrac*	56	62	6

* African Americans excluded

Table 4.
"Predicting" 1954 Results from 1972-2004 Regressions

Item	1954 Data	Prediction	Difference
SPKCOM	28	46	-28
LIBATH	37	59	-22
LIBCOM	29	48	-19
COLATH	12	26	-14
COLCOM	6	18	-12
SPKATH	38	47	-9

Ns for predictions= 28,364 to 29,840

Table 5.
"Polarization" Measures

	Tolath	Tolcom	Tolhomo	Tolmil	Tolrac*
Correlation R between YEAR and Variance of Item t (N=18-21)	-0.909 9.5	-0.787 5.6	-0.931 10.8	-0.827 5.9	-0.408 1.8
Regression** on YEAR among					
All tolerant	5.6	6.6	9.4	6	2.3
Mix	-1	-1.4	-2.2	-0.5	-0.6
All intolerant	-4.6	-5.2	-7.2	-5.4	-1.7

1 Americans excluded

** Raw regression coefficients converted to percentage points per decade

Table 6.
"Palatability" Test Items
(Cumulative GSS 1972-2004)

Mnemonic		"+=	Span	Years	N	r	t	R	"Linearity"
Tolath									
ATTEND	Religiosity	Low	72-04	25	46117	0.051	10.9	0.062	0.818
RELITEN	Religious intensity	Low	74-04	23	41485	0.053	10.8	0.065	0.815
Tolcom									
COMMUN	Attitude to "communism"	Pro	73-94	15	19526	0.092	8.3	0.092	-0.261
Tolhomo									
HOMOSEX	Attitude to Homosexuality	Pro	73-04	20	27116	0.167	19.8	0.167	0.779
Tolmil									
CONARMY	Confidence in military leaders	High	73-04	23	31920	0.127	14.3	0.127	0.768
NATARMS	US Spending on military	TooLittle	73-04	24	27480	0.127	1.1	0.127	-0.058
OBEY minus THINKSELF		Obey	86-04	13	16226	0.023	0.5	0.023	0.043
Tolrac*									
RACDIF2	Inequality due to "less inborn ability"	Agree	77-04	14	16010	0.143	17	0.143	0.629
RADFI4	Inequality due to lack of motivation	Agree	77-04	14	15625	0.123	14	0.123	0.654
RACMAR	Legalize intermarriage	Disagree	72-02	21	26703	0.241	34.2	0.241	0.909
RACPUSH	Blacks shouldn't push	Disagree	72-02	14	18189	0.334	45	0.334	0.814
RACSEG	Whites have right to segregate	Disagree	72-96	15	17984	0.228	31.4	0.228	0.495
Gender Roles									
FEHOME	Women should stay home	Disagree	74-98	16	22653	0.179	27.6	0.179	0.532
FEPOL	Women less suited for politics	Disagree	74-04	19	23838	0.215	31.5	0.215	0.837
FEPRES	Vote for woman for president	Yes	72-98	17	24447	0.142	24.9	0.142	0.423
FEWORK	Should married women work	Yes	72-98	17	24777	0.124	19.5	0.124	0.37

* African Americans excluded

Table 7.
Bivariate Correlations R Between Palatability Items
And Tolerance Indices**
(GSS 1972-2004)

Palatability Item	Tolath	Tolcom	Tolhomo	Tolmil	Tolrac*
ATTEND	0.196	0.154	0.186	0.148	0.137
RELITEN	0.232	0.201	0.203	0.182	0.166
COMMUN	0.243	0.326	0.208	0.231	0.174
HOMOSEX	0.36	0.354	0.417	0.331	0.239
CONARMY	-0.154	-0.158	-128	-0.095	0.108
NATARMS	-0.162	-0.18	0.153	-0.121	-0.078
OBEY	-0.284	-0.261	-0.306	-0.253	-0.164
RACDIF2*	-0.261	-0.258	-0.258	-0.235	-0.203
RACDIF4*	-0.224	-0.227	-0.227	-0.212	-0.128
RACMAR*	-0.425	-0.425	-0.451	-0.339	-0.203
RACPUSH*	-0.363	-0.336	-0.384	-0.318	-0.177
RACSEG*	-0.339	-361	-0.365	-0.297	-0.143
FEHOME	0.362	0.33	0.403	0.283	0.198
FEPOL	0.225	0.222	0.272	0.177	0.133
FEPRES	0.234	0.236	0.283	0.186	0.135
FEWORK	0.25	0.243	0.259	0.19	0.144

* African Americans excluded

** **Bold face** entries = high positive correlated implied by the palatability hypothesis

Table 8.
Correlations [®] Between General Liberalism Index and Tolerance Indices
(GSS 1974-2004)

Tolerance Index	r	t
Tolath	0.492	83.1
Tolcom	0.468	77
Tolhomo	0.514	88
Tolmil	0.394	58.9
Tolrac	0.305	42.5
Tolsum	0.516	84.6

Ns range from 17,645 to 21,624

Table 9.
Major Correlates of Trends in Tolerance
(GSS 1974-2002)

Predictor	I	II	III	IV	V	t
		<u>Tolsum</u>				
YEAR	0.147	-0.001	-0.013	-0.038	-0.024	2.7
COHORT		0.312	0.219	0.183	0.082	11.3
Pared			0.245	0.118	0.074	10.7
EDUC				0.323	0.247	36.7
General Liberalism					0.391	61.1
R			0.311	0.384	0.593	
N	24282	24221	21977	21977	19327	
		<u>Tolath</u>				
YEAR	0.127	-0.036	-0.047	-0.07	-0.058	9.1
COHORT		0.343	0.256	0.223	0.129	18.5
Pared			0.232	0.114	0.074	11.1
EDUC				0.297	0.226	34.9
General Liberalism					0.363	58.8
R		0.327	0.39	0.469	0.572	
N	28600	28529	25656	25656	21624	
		<u>Tolcom</u>				
YEAR	0.144	0.005	-0.006	-0.029	-0.017	2.6
COHORT		0.292	0.208	0.174	0.084	11.7
Pared			0.224	0.104	0.065	9.5
EDUC				0.304	0.237	35.5
General Liberalism					0.347	54.5
R		0.294	0.359	0.447	0.541	
N	27994	27931	25198	25198	21119	
		<u>Tolhomo</u>				
YEAR	0.195	0.06	0.05	0.028	0.042	6.7
COHORT		0.284	0.203	0.172	0.067	9.6
Pared			0.216	0.106	0.061	9.2
EDUC				0.272	0.201	31.2
General Liberalism					0.402	65.4
R		0.317	0.374	0.447	0.577	
N	26768	26702	24203	24203	21582	

	<u>Tolmil</u>					
YEAR	0.118	(0.024	(0.033	(0.053	(0.044	6
COHORT		0.299	0.225	0.197	0.125	15.7
Pared			0.195	0.093	0.062	8.2
EDUC				0.257	0.204	27.5
General Liberalism					0.274	38.7
R		0.288	0.339	0.407	0.477	
N	23730	23668	21473	21473	18879	

	<u>Tolrac*</u>					
YEAR	0.041	(0.026	(0.03	(0.047	(0.039	4.9
COHORT		0.137	0.077	0.59	(0.006	0.7
Pared			0.16	0.081	0.053	6.3
EDUC				0.095	0.145	17.6
General Liberalism					0.251	32
R		0.127	0.194	0.259	0.344	
N	22102	22052	20093	20093	17645	

* African Americans excluded

Table 10.
Impacts on Tolerance (Beta): Schooling* Versus Liberal Attitudes
 (GSS 1972-2004)

Dependent	General	
	Tolerance (t)	Schooling* (t)
Tolsum	0.411 (66.3)	0.301 (48.6)
Tolath	0.246 (32)	0.171 (22.7)
Tolcom	0.37 (59.9)	0.283 (45.8)
Tolhomo	0.31 (47.2)	0.167 (25.4)
Tolmil	0.303 (44.1)	0.263 (38.3)
Tolrac**	0.246 (32.6)	0.171 (22.7)

* Regression Prediction ® from EDUC and Parental Education

** African Americans excluded

Ns range from 17645 to 25646

Table 11.
Cohort and Period Trends in Tolerance
 (GSS 1972-2004)

Index	Gain Per Decade	t	r	R	Linearity
TolAthHat	5.87	46.7	0.273	0.307	0.924
TolComHat	5.57	44	0.258	0.29	0.921
TolHomoHat	5.96	45.1	0.264	0.297	0.924
TolMilHat	5.91	50.6	0.293	0.329	0.924
TolRacHat	3.19	30.9	0.219	0.258	0.9
TolAthRes	-1.73	7.5	-0.054	0.063	0.836
TolComRes	-0.66	2.7	-0.019	0.043	0.382
TolHomoRes	1.36	5.8	0.041	0.061	0.689
TolMilRes	-1.13	4	-0.031	0.052	-0.095
TolRacRes*	-1.67	4.9	-0.045	0.062	0.302

Gain Per Decade= raw slope, percentage points per decade

r= correlation, index and YEAR

R= multiple correlation, index and YEAR dummies

Linearity= correlation r and R

t= t statistic for gain and r

* African Americans excluded

Table 12
Trends in Basic Demographics 1972-2004
 (r between YEAR and demographic or R for set of dummies
 and YEAR)

Demographic	Correlation (linear change)
COHORT	0.475
Parental Education	0.227
EDUC	0.219
General Liberalism Index	0.158
Marital Status dummies	0.153
Religion dummies	0.147
Tolsum	0.147
City dummies	0.099
Region dummies	0.083
PRESTIGE (72-90)	0.057
PRESTIG80 (88-04)	0.057
AGE	0.024
Race (+=Black)	0.022
SEX (+= Female)	0.017

The GSS shifted occupational prestige codes in the late 1980s following the US Census. It turns out that both scales give a correlation of +0.57 with year

Table 13
Selected Demographic Effects on Various Tolerance Trends

	Tolsum	Tolath	Tolcom	Tolhomo	Tolmil	Tolrac
YEAR	0.147	0.127	0.144	0.195	0.118	0.041
Education	-0.113	-0.109	-0.105	-0.099	-0.094	-0.066
Marital	-0.011	-0.012	-0.01	-0.012	-0.01	-0.007
Religion	-0.014	-0.015	-0.016	-0.01	-0.008	-0.015
City Size	-0.003	-0.013	-0.011	-0.011	-0.01	-0.008
Region	0.003	0.002	0.003	0.005	0.001	0.002

Row 1 is the bivariate between YEAR and tolerance.

Other cell entries are obtained by subtracting the partial regression coefficient for YEAR, demographic controlled, from the bivariate for tolerance and YEAR, i.e. how much change is reduced/increased by the control

Education= EDUC and Pared

Marital= dummy variables for marital status

Religion= dummy variable for major religions

City Size= dummy variable for city size variable (SRCBELT)

Region= dummy variable for nine Census regions

Table 14.
Correlates* of Trends in Attitudes Toward Pornography
 (GSS 1973-2004)

Predictor	I	II	III	IV	V	t
YEAR	0.034	-0.1	-0.106	-0.109	-0.091	11.1
COHORT		0.304	0.25	0.249	0.196	22
Pared			0.107	0.093	0.052	5.9
EDUC				0.034	-0.012	1.4
General Liberalism					0.295	36.7
R		0.28	0.295	0.297	0.404	
N	27908	27830	25077	25077	17185	

* standardized partial regression coefficients

Table 15
Effects with Two APC Predictors

Setup	Control	X	Confounded	
			With	Actual Estimate
1	Age	Period	Cohort	P+C
2	Age	Cohort	Period	P+C
3	Cohort	Age	Period	P+A
4	Cohort	Period	Age	P+A
5	Period	Age	Cohort	A-C
			reversed	
6	Period	Cohort	Age	C-A
			reversed	

Table 13.
Illustrative Cohort vs. Age Results

Item	Average I&II	Average III&IV	Diff	"Standard Error"	"Z"
TOLATH	5.4	1.48	3.92	0.4491	8.7
TOLCOM	6.17	0.27	5.9	0.4775	13.2
TOLHOMO	8.11	2.1	6.01	0.4914	12.2
TOLMIL	6.2	0.21	5.99	0.5538	10.8
TOLRAC	2.09	0.6	1.14	0.6012	1.9
TOLSUM	5.8	0.55	5.25	0.4504	11.6
PORNLAW	1.84	6.48	-4.64	0.5937	-7.8
HEALTH	2.13	3.65	-1.52	0.4212	-2.4
Widowed	0.16	5.09	-4.93	0.1871	-2.6
Pared	11.05	3.11	7.94	0.4472	17.8
Farm residence age 16	4.3	0.89	3.41	0.1659	20.6
No. of Siblings	4.5	1.41	0.4491	0.4491	7.3

Cell entries are absolute values of percentage point change per decade

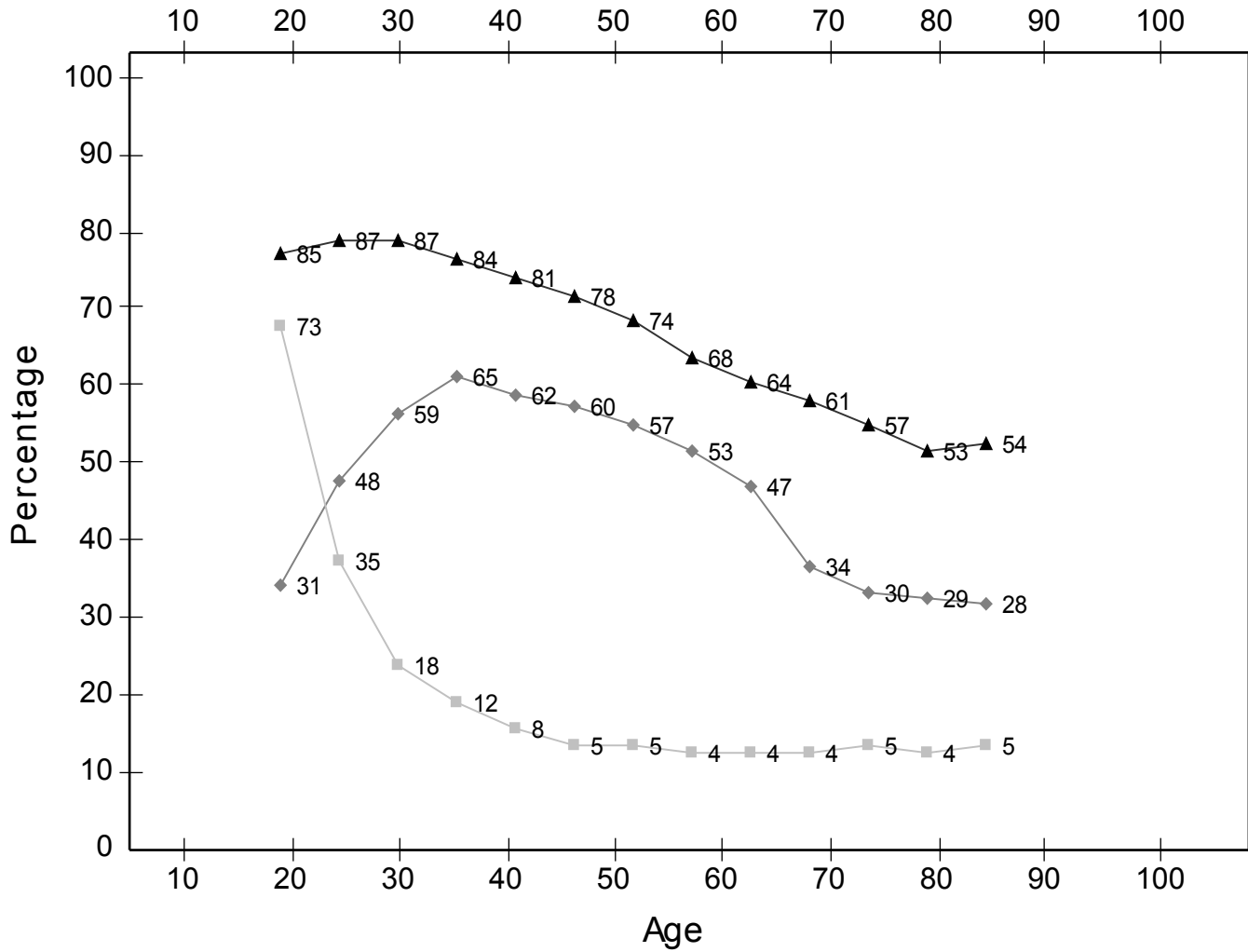
Column 1 is the mean for setups 1 and 2, column two the mean for setups 3 and 4

FIGURES TO ACCOMPANY

Gradual Increases in Americans' Tolerance of Free Expression, 1972-2004

(Figures are rough preliminary sketches)

Figure 1. Illustrative Linearity Results (GSS 72-04)



		Linearity
—▲—	% Self Rated Health = Excellent or Good	+.962
—■—	% Single, Never Married	+.745
—◆—	% Above median, per adult family income	+.179
N	Minimum = 842	
	Maximum = 6199	

Figure 2. Cohort and Period Effect on Tolath (GSS 72-04)

