lies, damned lies and lie detectors: introducing lie detector tests for benefit claimants

cause for alarm

The Department for Work and Pensions plans to bring in lie detector tests for benefit claimants, Secretary of State John Hutton announced just before Easter.[1] This is a bad policy; it adds to the demonisation of claimants and anti-poverty campaigners will oppose it. Whatever their views on welfare policy, anyone who cares about science and reason should also be alarmed: lie detectors do not work, they are as likely to finger the innocent but nervous as the genuinely guilty and one of the main advocates for the technology the Government plans to use has admitted that it "is not capable of lie detection."

what the Government plans

Over the last two years the procedure for claiming social security benefits has been radically reformed. Instead of popping in to a local social security office or picking up a form from the post office, most people now have to ring a call centre to initiate a claim for benefits; the claim begins with an interview over the phone, after which people may need to provide supporting evidence and sign forms. These new arrangements make it possible for the DWP to use a relatively new 'lie detection' technology: 'voice-risk analysis' (sometimes known as 'voice-stress analysis'.) This is a computerised system that compares a claimant's 'normal' voice at the start of the call with 'signs of stress' such as changes of tone or frequency that are supposed to betray when the claimant is lying – people who 'fail' this test will have to provide extra evidence to support their claim.

In a pilot in Harrow, to be run from May by Capita, the new system will be tested on people ringing the council to claim Housing or Council Tax Benefit. The new system will then be rolled out to Jobcentres for other benefits later in the year.

lie detector tests

Ever since a 'scientific' machine was invented in 1915 by William Marston (the creator of Wonder Woman),[2] there has been controversy about lie detectors. A particular problem has been that they cannot detect lies. What they can detect, with varying accuracy, is changes in the body, such as heart and breathing rate, perspiration or, in the case of voice-risk analysis, the tone, pitch and any tremors in the voice. People who believe in lie detector tests necessarily claim that it is possible to make reliable judgements about whether someone is lying on the basis of measurements of these changes.

This claim is hard to maintain. The most fundamental problem is that lies are psychological, not physiological phenomena. Some people are not upset if they lie, some others feel guilt and others feel shame; in some people the guilt or shame will translate into anxiety, in others not, or not to the same extent. People can also have differing opinions about whether a statement is a lie, an untruth, an interpretation and so on. All this can be affected by the person's beliefs and cultural background. The translation of the consciousness of lying into physiological changes can vary a great deal - even if two people agree that a statement is a lie and feel the same degree of guilt, shame and anxiety, these two people may well exhibit different physiological reactions.

There simply aren't any results that can enable an operator to identify a lie, regardless of who is being tested. That is why all lie detectors, including voice-risk analysis, have to establish a base-line for the individual being tested, and then measure variations from it.

beating the lie detector

The key to most techniques for passing a lie detector test is the fact that the test measures differences between your 'normal' state and your 'lying' state. Tests can be passed by increasing your stress levels during the 'normal' phase (pressing down on a nail you've put in your shoe is the best known method). Alternatively, relaxation techniques, that control your body's stress responses, can reduce your chances of a positive response. Advocates of voice-stress recognition claim this is impossible in the case of their technology, but their equipment is in fact particularly open to counter-measures. The price of polygraph equipment means that the only people who have ever been able to practice the test repeatedly have been professional spies, but voice-stress detection is much cheaper, with some kits available as freeware on the web. Anyone with Internet access can practice until they are confident of passing a voice-stress analysis test.

But several problems flow from this. Firstly, it is possible to beat the tests (see box) – a trenchant critic of polygraphs is Aldrich Ames, the notorious CIA double agent, who passed his tests repeatedly.[3]

Secondly, the experience of being tested – or of claiming a benefit and being told that your voice is being checked for lies – is inherently stressful, so your reactions may come to seem less truthful as time goes on. People with a particular regard for the truth can be the most stressed in these circumstances – lie detector tests have a tendency to pass people for whom deception is a way of life and fail those who are scrupulously honest.

Thirdly, because each individual's reactions vary, lie detector tests have to be evaluated – making the operator's perceptions, beliefs and prejudices a part of the equation.

For all these reasons, lie detector tests face the problem of 'false negatives' – liars who are not detected – and 'false positives' – honest people accused of lying. In 2002 a report from the US National Academy of Sciences calculated the results of a hypothetical screening by a machine that was 90% accurate of 10,000 people to find 10 spies. If the machine was set up to detect nearly all the spies (80%), it would discover 8 spies who would fail the test, but 2 would pass; 1,598 innocent people would also fail the test – 99.6% of all those failing. If the machine was set to eliminate nearly all the false positives, this number would come down to 39, but only 2 of the spies would be discovered.[4]

polygraphs

Always more popular in the USA, the polygraph has more supporters there than anywhere else (especially among police forces and security services) but the scientific consensus is negative. The National Academy of Sciences report found that polygraphs "may have some utility" but that "its accuracy in distinguishing actual or potential security violators from innocent test takers is insufficient to justify reliance on its use in employee security screening in federal agencies."[5]

As a result of this consensus polygraph evidence is not accepted in courts in the UK or most US states. Although the Home Office uses polygraphs in managing sex offenders, it has promised to "exclude the use of information from the tests as evidence in fresh criminal proceedings against the offender."[6] US concerns about the accuracy of polygraphs led to the passing of the

1988 Employee Polygraph Protection Act, which bans most private sector employers from using a polygraph to test employees' honesty.[7]

voice-risk analysis

Voice-stress analysis is a more recent technology than the polygraph, and a 2003 literature review[8] found that "there have been no scientific studies conducted, to date, to measure the validity of the computer stress analyzer to detect deception. It has been argued that the computer stress analyzer is more cost effective, convenient, and more user friendly than the traditional polygraph equipment, however, one question still remains unanswered: how reliable is the equipment in its actual ability to detect, measure, and display changes in voice frequency? Has it ever been scientifically measured? The answer to this question is 'no'. Manufacturers contest that their computer stress analyzers are 100% accurate and effective by producing testimonials as a foundation to their claims, but this is not widely accepted as scientific validity."

In the same year the National Academy of Sciences report also found that polygraphs may be weak, but voice-stress analysis is even weaker: "overall, this research and the few controlled tests conducted over the past decade offer little or no scientific basis for the use of the computer voice stress analyzer or similar voice measurement instruments as an alternative to the polygraph for the detection of deception. The practical performance of voice stress analysis for detecting deception has not been impressive. It is possible that research conducted in high-stakes situations would give better results, but we have not found reports of the accuracy of voice stress analysis in such situations."[9]

In the USA the fact that there is no evidence for voice-stress analysis has led to heightened concern about its use by public agencies[10] and the professional association for police chiefs has expressed particular concern about its use on rape victims:

"Based on the misperception that a significant percentage of sexual assault reports are false, some law enforcement agencies use polygraphs or other interrogation techniques (including voice stress analyzers, SCAN) when interviewing victims. Victims often feel confused and ashamed, and experience a great deal of self-blame because of something they did or did not do in relation to the sexual assault. These feelings may compromise the reliability of the results of such interrogation techniques. The use of these interrogation techniques can also compound these feelings and prolong the trauma of a sexual assault."[11]

The criticisms of voice-stress analysis have become more vocal since two high profile cases based on voice-stress analysis – Michael Crowe, accused of murder and Vincent Sedgwick, accused of rape – saw innocent people facing trial. Mr Crowe later described how he confessed after the police had told him "the machine is more accurate than the polygraph and is the best device for telling the truth, for finding the truth." Then one week before the start of his trial DNA evidence led the police to the real killer, who is now in prison. When Mr Crowe's family sued the National Institute for Truth Verification – the marketers of the equipment used and one of the main advocates for voice-stress analysis – the case was settled out of court and an NITV executive admitted that the voice-stress machine cannot detect lies.[12] In another case the NITV admitted in court that "CVSA is not capable of lie detection and specifically cautions its users regarding the proper use of the device."[13]

The USA has a large polygraph industry, which has been threatened in recent years by the growth of voice-risk analysis. This is an issue for anyone researching the DWP use of voice-risk analysis because some of the critical studies have been sponsored by the polygraph

industry. Thus, for instance, a 1996 study[14] found that voice-stress analysis performed no better than chance; as this was a double-blinded study it was particularly impressive, but the agency responsible was the Department of Defense Polygraph Institute, which makes it harder to feel confident about the results.

how to use a machine that doesn't work

The question anyone researching this issue has to ask themselves is: given all the evidence, why are police agencies and security services so keen to go on using polygraphs and voice-stress analysis? In the UK, insurance companies have been using voice-stress analysis on their claims lines, and some believe that the level of fraudulent claims has fallen as a result: why?

We can see the answer in a policeman's story from the days when police forces could not afford polygraphs and most criminals had never seen a photocopier:

"I remember the Xerox machine being a valuable investigative tool as well. All the detective had to do was push the magic button and out came a piece of paper with the word LIE or TRUTH on it. 'What's your name?' was the first question. 'Sam Jones' was the reply. Push the button and out came the answer 'TRUE.' 'Okay Sam, you've done pretty well so far. Now, did you steal your Bill Doe's bike this morning?' asked the detective. 'No,' says Sam. Push the Xerox button, and here comes the answer, 'LIE.'

"Some of you may laugh, yet others will remember the utility of this less than scientific procedure. People can be awestruck by the appearance of science. Before the advent of the Xerox machine, people had to use 'carbon paper' if they wanted copies. People could certainly be naïve in those days. Well, faced with the scientific appearance of CVSA, people can still be naïve in these days as well. The argument for CVSA seems to be based on the utility of the device, not the accuracy of it."[15]

Whether lie detectors work or not, in films and TV they are infallible. As long as there is a widespread belief in the technology it will persuade some guilty people to confess when the police use it, or to withdraw their insurance claim.

And here we come to the final argument against the DWP's use of voice-stress or voice-risk analysis. Using equipment that is – at best – unproven might be acceptable if only the guilty confessed and only fraudsters withdrew their claims. But American experience shows that innocent people have confessed to crimes they did not commit, and we simply do not know how many British people with valid insurance claims have withdrawn them. Using voice-stress analysis software when people apply for benefits will intimidate some who are not fraudulent into withdrawing their claims, and we can confidently predict that innocent people will account for a majority of those whose claims are delayed while they provide extra evidence to support their claims.

This measure adds to the impression that most benefit claimants are fraudsters, when in fact the evidence is strong that the vast majority are honest. Lie detector tests have a glamorous *film noir* air to them, but the reality is that we aren't dealing with mafia dons lying about what happened to business competitors, but with some of the poorest and weakest people in the country. Most of them are entirely innocent, and even those who aren't are more likely to be vulnerable and at the end of their tether than cynical fraudsters. No government should be proud of betraying its commitment to science and reason to intimidate them.

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1 "Benefit claimants to face lie detector tests", Helene Mulholland, *Guardian*, 5 April 2007.
2 "Polygraphs and the National Labs: Dangerous Ruse Undermines National Security", Alan P. Zelicoff, *Skeptical Inquirer*, July/August 2001.

3 Available on the website of the Federation of American Scientists' Project on Government Secrecy, at http://fas.org/sgp/othergov/polygraph/ames.pdf
4 *The Polygraph and Lie Detection*, Committee to Review the Scientific Evidence on the Polygraph, National Academy of Sciences, 2003, table s-1.
5 Ibid, p 6. "Most scientists who have studied polygraph testing are deeply skeptical of its usefulness in screening employees as a way to enhance security." ("Polygraph Testing and the DOE National Laboratories", Steven Aftergood, *Science* 3 November 2000: Vol. 290. no. 5493, pp. 939 – 940.) An overview of the Control Question Test (the commonest form of polygraph testing) found that "scientists, including members of the Society for Psychophysiological Research and APA Fellows, hold negative views about the CQT. They do not believe that it is based on sound theory, that it has adequate psychometric properties, or that it should be used as evidence in court." ("Forensic ''Lie Detection'': Procedures Without Scientific Basis", William G. Iacono, *Journal of Forensic Psychology Practice,* vol 1 no 1 (2001), p 75.)
6 Management of Offenders & Sentencing Bill 2005, Regulatory Impact Assessment for the provisions for the mandatory Polygraph Testing of certain Sexual Offenders, p 2, downloaded from http://www.homeoffice.gov.uk/documents/ria-manage-offenders-bill-060105/ria-offender-polygraphy-060105?view=Binary on 4/6/2007 11:40 pm.
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9 NAS op cit, p 168.
10 See for instance, "Corrections Uses Voice Analyzers: State Agency Uses Controversial Devices In Prison Investigations", George Hesselberg, *Wisconsin State Journal*, January 25, 2006; "Arguments rage over voice-stress lie detector", Dennis Wagner, *Arizona Republic,* October 10 2005 or the articles archived at www.antipolygraph.org
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12 "Innocent Until Proved Guilty", Brian Ross, ABC News, March 30 2006, downloaded from http://www.abcnews.go.com/Primetime/story?id=1786421 on 07/04/2007 19:43.
13 "Voice analyzers draw praise, flak", John Tuohy, *Indianapolis Star*, November 7 2004.
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15 "Investigative tool or troublesome black magic?": Warren J. Sonne, 13-6-06, downloaded from http://www.officer.com/article/printer.jsp?id=30966&siteSection=18 on 08/04/2007 10:06.