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## A long-term rise and recent decline in intelligence test performance: The Flynn Effect in reverse

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### Abstract

In the 1980s reviewed evidence indicated that, through the preceding decades of the last century, population performance on intelligence tests had been rising substantially, typically about 3–5 IQ points per decade, in developed countries. The phenomenon, now termed the ‘Flynn Effect’, has been variously attributed to biological and/or to social and educational factors. Although there is some evidence to suggest a slowing of the effect through the 1990s, only little evidence, to our knowledge, has yet been presented to show an arrest or reversal of the trend. Substantially replicating a recent report from Norway, we here report intelligence test results from over 500,000 young Danish men, tested between 1959 and 2004, showing that performance peaked in the late 1990s, and has since declined moderately to pre-1991 levels. A contributing factor in this recent fall could be a simultaneous decline in proportions of students entering 3-year advanced-level school programs for 16–18 year olds.

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## 1. Introduction

It is now over 20 years since Flynn (1984), in a seminal review, first drew attention to the extensive evidence for rising levels of intelligence test scores in the American population through the preceding decades of the last century. This was followed by a further review in which he demonstrated the same effect to have occurred in other economically developed countries from which relevant evidence was available (Flynn, 1987). The magnitude of the effect, which has come to be dubbed the *Flynn Effect* (Herrnstein & Murray, 1996), varied in time and place but could generally be summarized to be about 3–5 IQ points per decade. The effect has been seen most prominently in so-called ‘fluid’ tests of intelligence, i.e., tests requiring educative reasoning to a logical conclusion from given, usually abstract, information such as is presented in Raven’s Progressive Matrices (Raven, 2000). The effect has typically been ascribed to either biological factors, such as improved nutrition and health care, or social factors including educational developments (Neisser, 1998).

Although evidence of the Flynn Effect continues to be reported in the literature, such reports are most often based on two time-point comparisons, which preclude the possibility of examining whether or not the gains have been linear over time. Furthermore, there have, to our knowledge, been few reports concerning any continuing Flynn Effect specifically over the time period after the 1980s and into the present century. One exception is a Danish study using draft board data, in which we reported, inter alia, a slowed rate of gain between 1988 and 1998 in Denmark (Teasdale & Owen, 2000). More recently, Sundet, Barlaug, and Torjussen (2004), using 50 years of conscript data in Norway, have reported a complete cessation of gains between the mid 1990s and 2002.

There has long been a recognition of the unlikelihood of the effect continuing indefinitely. In the present study we update our earlier reports to include the time period up to and including 2004, particularly to investigate whether in Denmark, as in Norway, the Flynn Effect has ended.

## 2. Method

Our data derive from the Danish draft board. There has been conscription in Denmark uninterruptedly since World War II and, at age 18, all Danish men are required to appear before the draft board, which assesses their suitability for military service. The only exemptions are about 5–10% of men who have a medically documented illness or condition which would disqualify them from military service, e.g., severe asthma, Scheuermann’s disease. The assessment procedure includes an intelligence test, the Børge Priens Prøve (BPP, Rasch, 1980). This is a 45-min paper-and-pencil test administered in groups of about 30. It comprises four subtests, (a) a matrix test resembling Raven’s Progressive Matrices (19 items, 15 min), (b) a verbal analogy test (24 items, 5 min), (c) a number sequence test (17 items, 5 min), and (d) a geometric figures test (18 items, 10 min) (Teasdale & Owen, 1994). None of the subtests is multiple-choice. For administrative purposes the BPP test is scored as the total number of correct items, 0–78, and this raw score is converted to a stanine scale, 1–9. The total BPP score has been shown to correlate .82 with the Wechsler Adult Intelligence Scale (Mortensen, Reinisch, & Teasdale, 1989).

The BPP test was introduced by the draft board in 1957 and has been used continuously and unaltered, in both content and administration procedure, to the present day. The grouping ranges

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