

Misleading policy messages from the TFR. Should we stop using it?

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INTRODUCTION

MISMATCH: Advances in fertility measurement not matched with the actual data availability

DEMOGRAPHIC DIMENSIONS of analyses:

- Period (years, months) vs. Cohort (birth & parity cohorts)
- Tempo vs. Quantum
- Parity, age of mother, duration since previous birth

More factors can be added: region, multiple births, men's fertility, education level, country of origin, partnership status

PRACTICE: it (almost) all comes down to the period *Total Fertility Rate (TFR)*

What's wrong with the period TFR?

DOMINATING THE FIELD

- TFR has become the indicator of choice in period fertility analysis; especially for cross-country comparisons
 - broad availability, seemingly intuitive understanding
- The only indicator used in public discussions about fertility trends
- Repeatedly interpreted as if it were a cohort indicator: “*children per woman*” interpretation (‘synthetic cohort’ concept)
- Controls for age distribution of the female population, but not for parity, duration, tempo
- Demographers and few policymakers aware of tempo effect and compositional distortions, but these are often treated as minor factors left to technical demographers

FOCUS: TFR in the context of policy debates

TFR use and misuse in policy-relevant debates

- Analysing fertility rates: claims of 'insufficient' birth rates
- Estimating the 'gap' between fertility intentions and realised fertility
- Analysing fertility trends and reversals
- Analysing effects of policies
- Analysing differential fertility (e.g., migrant vs. 'native' women)

Within all these purposes, TFR may lead to misinterpretation of fertility trends, levels, and differentials

EXAMPLE 1: Period TFR interpreted as a cohort measure with implications for future population trends

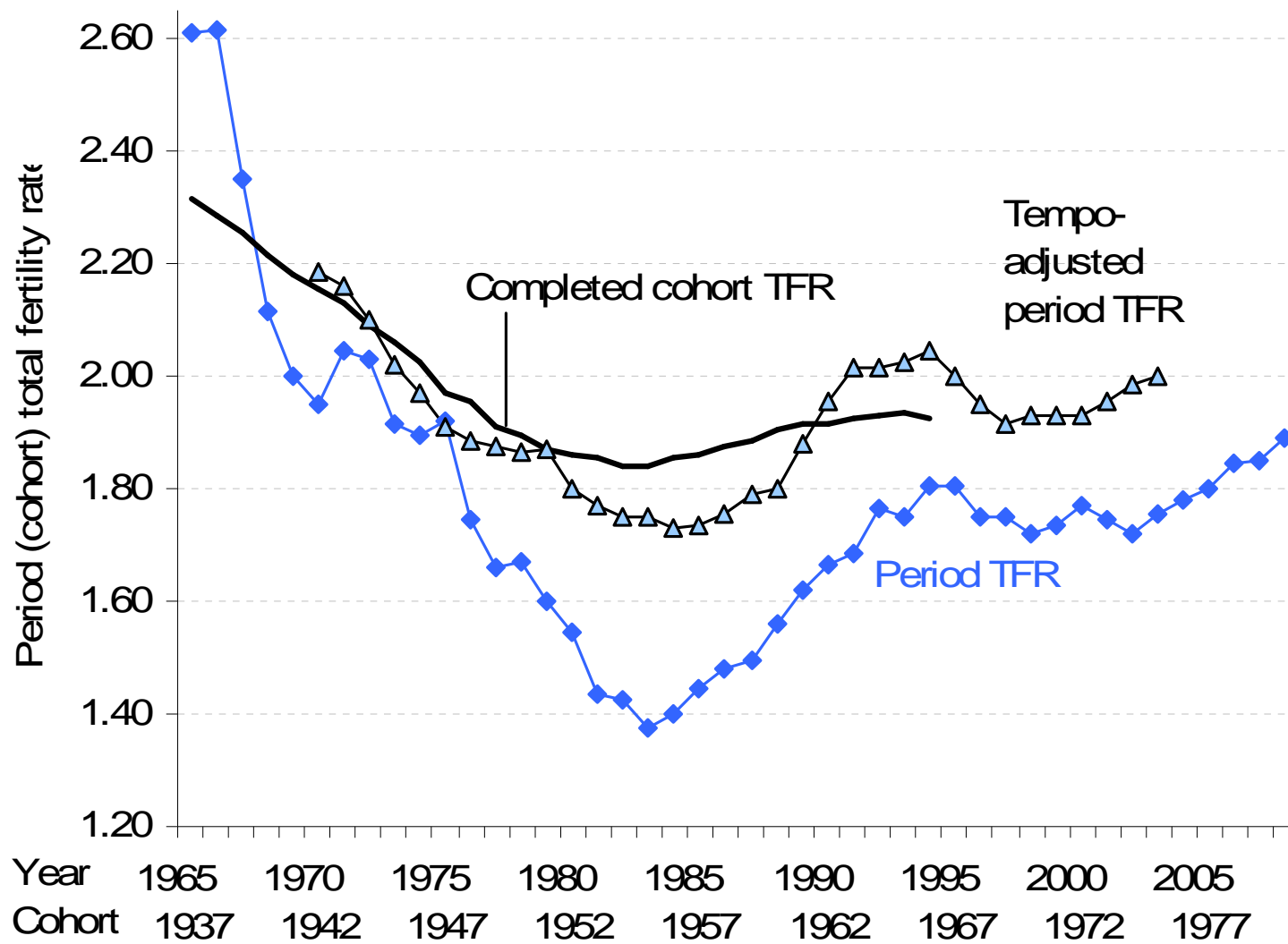
EU commissioner Špidla (2007): *“Fertility rate for the EU is about 1.5 children per women (...) countries (...) with fertility rates 1.3 children or less face dramatic population decreases”*

- BUT: Countries may experience wide and long-lasting divergence between the period and cohort TFR
- Completed TFR of the 1970 cohort above 1.7 for the EU (<1.5 Italy, 2.1 Ireland)

‘Forecasting’ interpretations and statements based on the TFR: future population declines

Reher (2007: 194): *“Extremely low fertility has been around for too long for it to portend anything other than major long-term social change. It gives every indication of having become a structural aspect of the developed world.”*

Denmark: TFR, completed cohort TFR, and tempo-adjusted TFR



EXAMPLE 2: The gap between desired and realised fertility levels

Dominant and politically convenient approach to addressing low fertility is to emphasise this gap

EU parliament 2008: *“the average birth rate in the European Union, is not a reflection of (...) European citizens’ actual aspirations”*

Chesnais (2000: 133): *“...average ideal family size is around two (...), but the observed TFR for the European Union is only 1.4.”*

- The ‘gap’ commonly interpreted as a sign of insufficient policies, lacking infrastructure, and a need for policy action

McDonald (2006): *“...women are effectively commenting upon the nature of social-institutional setting in which they consider having children...”*

EXAMPLE 2: The gap between desired and realised fertility levels

Troubles with measuring the 'gap'

- Future cohort intended family size is being compared with the distorted measure of (past) period fertility

Measuring problems on both sides:

- **Intentions:** which measure to use? How to deal with uncertain respondents and ambiguous answers ('probably no', 'yes-moderately sure'...)
- **Fertility:** the only unambiguous measure is completed family size (long 'waiting time')
- How to deal with unplanned births?

Period TFR is arguably the least suitable measure!

EXAMPLE 2: The gap between desired and realised fertility levels

Measuring the 'gap': period perspective (GAP 1)

	(1) Personal ideal family size	(2) Actual + intended family size	(3) TFR	(4) Tempo adjusted TFR	(5) Gap 1 (1)-(3)	(6) Gap 2 (1)-(4)	(7) Gap 3 (2)-(4)
Western Europe	2.44	2.36	1.88	2.00	0.56	0.44	0.36
Northern Europe	2.57	2.35	1.85	1.96	0.72	0.61	0.40
Southern Europe	2.08	1.81	1.37	1.47	0.71	0.61	0.34
Austria + Germany	2.07	1.88	1.34	1.59	0.74	0.48	0.28
Central-Eastern Europe	2.09	2.04	1.31	1.67	0.79	0.42	0.37
Finland	2.61	2.62	1.84	1.91	0.77	0.70	0.71
EU-27	2.21	2.06	1.53	1.72	0.68	0.49	0.35

Ideal and intended family size and total fertility rate among women in various regions of the EU in 2006

Data: Eurobarometer 2006 analysed by Testa 2006

EXAMPLE 2: The gap between desired and realised fertility levels

Measuring the 'gap': period perspective (GAP 3)

	(1) Personal ideal family size	(2) Actual + intended family size	(3) TFR	(4) Tempo adjusted TFR	(5) Gap 1 (1)-(3)	(6) Gap 2 (1)-(4)	(7) Gap 3 (2)-(4)
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Measuring the 'gap': cohort perspective

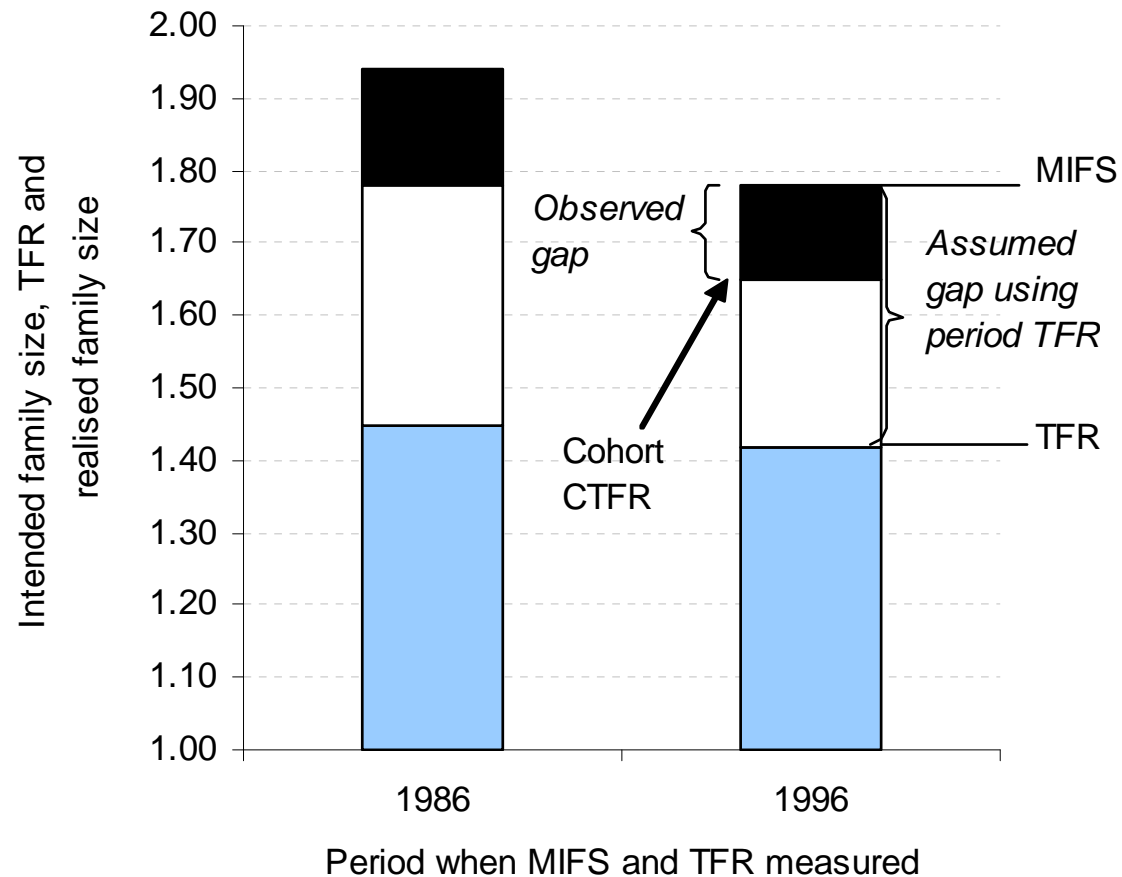
		MIFS	Period TFR	Gap 1	Completed TFR	Gap 2
Years	Cohort	(1)	(2)	(2)-(1)	(3)	(3)-(1)
1979-81	around 1952	2.12	1.84	0.28	2.05	0.07
1982-84	around 1955	2.16	1.76	0.40	2.02	0.14
1985-87	around 1958	2.16	1.79	0.37	1.99	0.17
1988-90	around 1961	2.20	1.82	0.38	1.96	0.24
1991-93	around 1964	2.09	1.79	0.30	<i>1.92 (est)</i>	0.17
1994-96	around 1967	2.14	1.74	0.40	<i>1.91 (est.)</i>	0.23
Average		2.15	1.79	0.36	1.98	0.17

Intended family size, period TFR and completed CTFR in England and Wales, 1979-96 (cohorts 1952-67)

Data: MIFS: Smallwood and Jefferies 2003, Table 1

Austria: Gap between intended and realised fertility, estimated with the period TFR and measured with the cohort TFR

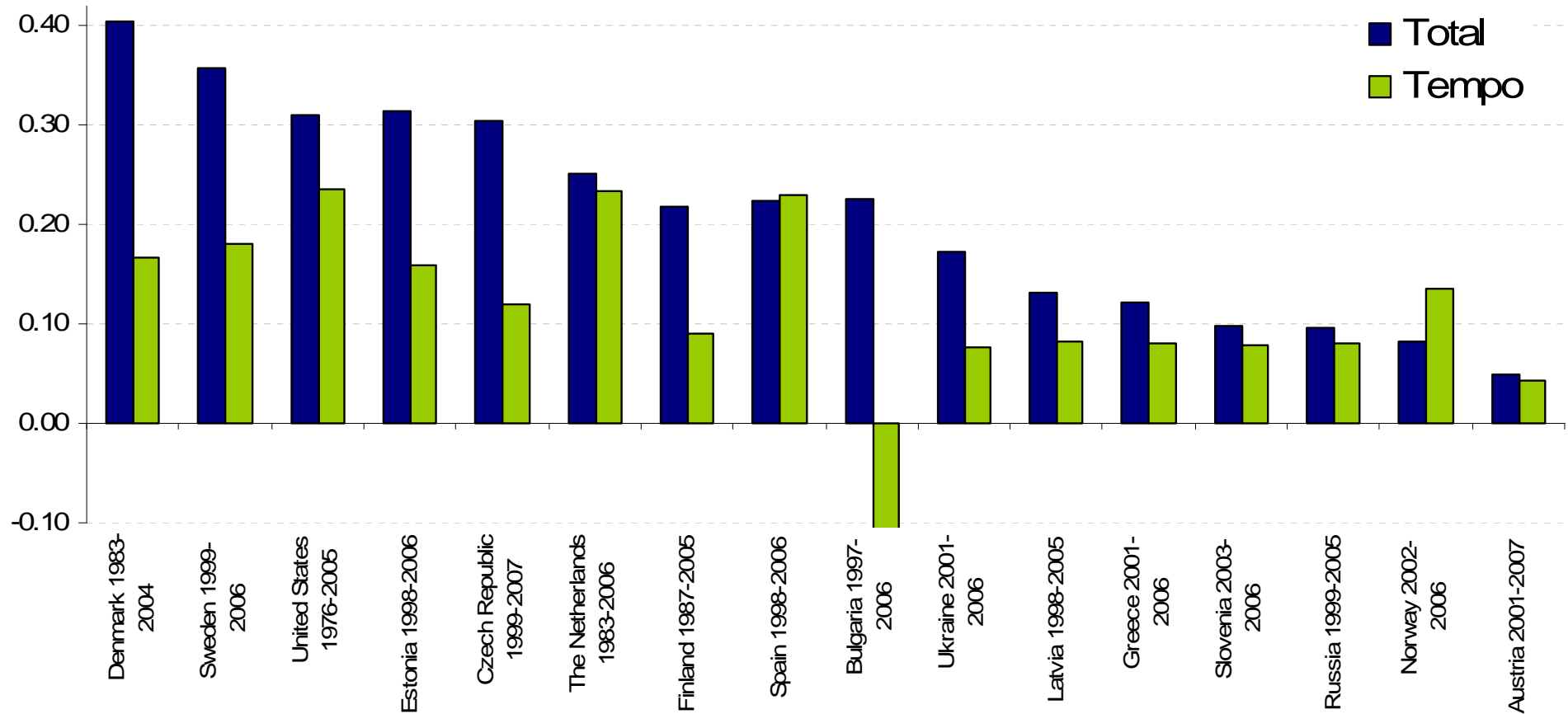
(years 1986 and 1996, cohorts 1956-60 and 1966-70)



EXAMPLE 3: 'Policies work': Interpreting recent increases in period TFR in Europe

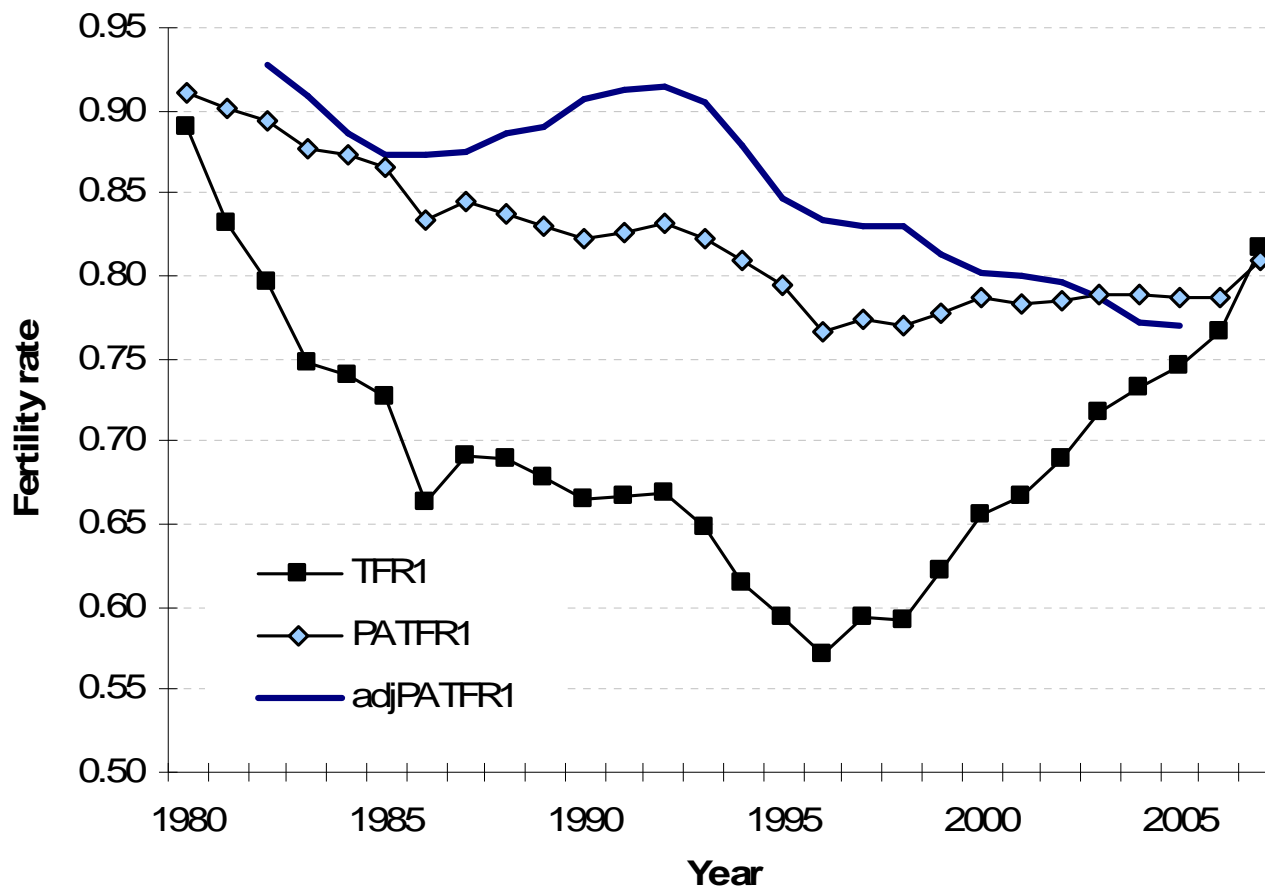
- In many countries, not a major turn-around in fertility, but an expected end of tempo effects in the TFR
 - Around 2000, tempo distortion of 0.2-0.4 in most countries in Europe
- Most evident in the case of first birth rates: TFR often rises due to changing parity distribution & tempo effect, without an increase in first birth intensity

TFR rise since the year of reaching lowest level and the estimated contribution of tempo to this increase (selected countries, using Bongaarts-Feeney (1998) adjustment)



Source: Goldstein-Sobotka-Jasilioniene 2009

Spain: Indicators of first birth rate, 1980-2007



PATFR1: table index controlling for parity distribution, but not for tempo

adjPATFR1: Kohler & Ortega's (2002) tempo and variance-adjusted PATFR1

EXAMPLE 4: Comparing fertility differentials in a country and over time

FRANCE 1991-98

TFR of 'native' F: 1.70, TFR of migrant F: 2.50

Difference: +0.80

BUT: Migrant's fertility often depends on their duration of stay (elevated fertility soon after immigration)

- TFR may be affected by the ups and downs in migration

Toulemon (2004, 2006): TFR in France controlling for ('adjusted') migrants' duration of stay:

TFR of 'native' F: 1.70, TFR of migrant F: 2.16

Difference: +0.46

When there are different timing changes or duration-specific patterns in fertility behaviour of groups, TFR use may provide incorrect assessment of fertility differentials (also for religion, education,)

EXAMPLE 5: Assessing policy effects on fertility

Period TFR frequently rises after new family policies are introduced

- Sweden: late 1980s (parental leave extensions 1980, 1986)
- Russia: 1980s (maternity leave 1982)

But: These ups often temporary, driven by advancement of births or shorter birth intervals, and not reflected in cohort fertility

Zakharov (2006): analysis of the fertility increase in Russia

Period perspective: TFR increase by 20% (1.87 in 1980 -> 2.23 in 1987); 9.8-10.8% extra births in 1980-90

Cohort perspective: +3.6% extra births in cohorts 1948-60

CONCLUSIONS

Problems when using the period TFR

- 1) Misinterpreting fertility levels and incorrect inferences about population prospects ('replacement' levels of fertility)
- 2) Cohort (mis)interpretation: 'children per woman'
- 3) Exaggerating the 'gap' between intentions and realised fertility; observed gap is often reduced by a half
- 4) Incorrect inferences about rising fertility when tempo effects dominate
- 5) Distorting fertility differentials between groups
- 6) Cheerful interpretation of policy effects

Which indicators should be used?

One does NOT fit all: The choice of fertility measures should be determined by the research question asked (Ní Bhrolcháin 2008)

- Some questions addressing cohort issues (e.g., *the gap between intended and achieved family size*)
- Some questions pertaining to specific birth orders or age groups: “*What portion of ‘postponed’ first births occurred later in life?*”
- Some questions concerned about timing: “*Did the past economic crises cause a genuine decline in fertility rates or ‘just’ fertility postponement?*”

There is no single indicator of choice addressing all the relevant issues -> adopting a ‘bouquet’ of fertility indicators?

What's wrong with the period TFR?

IS THERE ANY ROOM FOR THE TFR LEFT?

- In most cases, other indicators preferable for policy-relevant analysis and should be used when possible

Pragmatic reasons for keeping TFR in the game (alongside other measures)

- Data availability, widespread use
- It often rises and declines in line with the trends in other indicators
- It may suffice for addressing some questions
- Almost all measures 'distorted' or potentially questionable

BUT at the minimum: The '*children per woman*' interpretation should be abandoned

BIG QUESTIONS at the end

...besides the 100 EURO Q....

- Is tempo effect always a distortion or an integral part of any period trend and hence of any indicator of period rates?
- Can we distinguish between period fertility tempo and quantum?
- In which situations does the ordinary period TFR suffice as a measure of period fertility levels and trends?
- Which alternatives to the period TFR should be preferred?
- How to communicate complex fertility measures to policymakers and reduce their reliance on the TFR?

Should we stop using the TFR for populations where parity-specific data exist?

The 100 Euro Question:

- **Can you come up with any real world question (policy or scientific) for which the period TFR would be the indicator of choice (give better information than any other indicator) for populations with parity-specific data?**

Excluded are tautological questions derived from the definition of the TFR such as “what is the sum of age-specific fertility rates” or “what is the level of fertility when only adjusting for age structure and not for parity or tempo effect”?