

**The Scope for Cost Savings:****Why Meeting Regulators' Efficiency Targets is Getting Tougher****12 December 2005****1. Introduction**

One of the most striking features of the periodic reviews carried out by Ofgem and Ofwat in 2004 was the assumption that even the leading companies in the two sectors would be able to deliver real reductions in operating expenditure (opex) throughout the next five-year period. After 15 years of almost continual improvements in efficiency, Ofgem and Ofwat concluded that there was no reason to believe that the scope for savings had been exhausted or that sector-specific cost pressures would prevent further real-term gains from being delivered in the future.

This is all the more significant because regulators across the utility sector now recognise that even holding opex constant in real terms requires companies to achieve efficiency savings. Real reductions in opex are only possible if companies are able to outperform the rate at which productivity is growing across the economy or are successful in holding input price inflation below the rate of inflation experienced by other firms. The efficiency targets set by Ofgem and Ofwat, like other regulators before and after them, therefore amount to an assumption that network utilities will not only become more efficient, but also that they will do so at a significantly faster pace than firms from other parts of the UK economy.

In this short discussion paper, we show that this will be a considerable challenge. In particular, we identify fundamental shifts in the balance of the economy over the last five years that appear to make a given % reduction in real opex harder to achieve now than it was in the 1990s. We conclude that these changes have added at least 1% to the underlying productivity improvements that companies must achieve in order to meet regulatory targets and suggest that there might be a softening in the demands that regulators make of companies at future reviews.

The paper is organised as follows:

- section 2 explains in more detail the relationship between targets set by regulators during periodic reviews and the performance of the rest of the economy;
- section 3 looks at the changes in the way in which other sectors have performed over the last decade, focusing especially on the component parts of the retail prices index (RPI); and
- section 4 examines the implications for future periodic reviews and the way in which regulators should approach the task of setting efficiency targets.

**2. The relationship between RPI and efficiency targets**

Efficiency assumptions that appear in periodic review determinations are deliberately expressed in terms of annual real reductions in opex. This is a natural consequence of the RPI – X form of regulation and the conscious decision that regulators make to index allowed revenues (and the individual building blocks within the calculation of allowed revenues) in line with the out-turn rate of growth in RPI.

At one level, indexation can be thought of as a simple protection for regulated companies against unexpected changes in the general level of prices – a mechanism that ensures that companies' revenues maintain their value in the face of inflation. In the specific context of setting opex

allowances, however, indexation has additional significance. This is because the rate of growth in RPI is inextricably linked to the rate at which businesses in general are improving productivity and holding down input prices. The key relationship, often quoted by regulators, is as follows:<sup>1</sup>

$$\Delta \text{ RPI} = \Delta \text{ input prices} - \Delta \text{ economy-wide TFP}$$

The logic here is quite straightforward. If input prices rise, the increase in costs is reflected in the prices that firms charge for their products and the rate of growth in RPI. Similarly, if firms generally are able to improve productivity (i.e. they are able to produce more output for a given level of inputs, or they are able to produce the same output using a lower quantity of inputs), unit costs will fall and feed into lower prices and a reduction in the rate of growth of RPI.

This relationship is important because the annual rate of growth in RPI can be thought of as a benchmark representing the average rate of input price inflation and productivity improvement across the entire range of firms that supply households in the UK with goods and services. If, for example, firms outside the utility sector start to improve productivity more quickly than in the past, the rate of growth in RPI will fall and a regulated company will automatically be forced to match these improvements in productivity in order to meet their own efficiency targets. Conversely, if productivity growth starts to decline in other sectors of the economy, the rate of growth in RPI will increase and efficiency targets will become easier to achieve.

The fact that RPI captures only the average rate of input price inflation and productivity improvement means that regulated companies do not need to be overly concerned about the performance of any one individual firm in the economy. However, they ought to take a much keener interest in developments in individual industries or sectors. This is because the Office of National Statistics calculates RPI by measuring the change in prices of a relatively small number of goods and services – around 650 in total. In compiling the index, each good and service is given a weighting according to how much a typical household will spend on those products. Currently there are a number of items within the index that have relatively high weighting and where changes in prices can have a material effect on the rate of growth in RPI. Table 1 picks out some of the largest components.

**Table 1: Weights given to certain items in the calculation of RPI, 2005**

<b>Product</b>	<b>Weight</b>
Purchase of motor vehicles	0.059
Mortgage interest payments	0.050
Clothing and footwear	0.048
Rent	0.042
Council tax and rates	0.039
Beer	0.037
Petrol and oil	0.035
Foreign holidays	0.032
Wine and spirits	0.030

*Source:* Office of National Statistics (2005), Focus on Consumer Price Indices

<sup>1</sup> Strictly speaking, this relationship holds only if there is perfect competition in all sectors of the economy.

If, for example, the price of clothing falls suddenly, perhaps because cheaper labour has been found to produce such items, the annual rate of growth in RPI will also fall. This matters to a regulated company because the year-on-year change in its revenues in out-turn prices, i.e. after indexation, will be lower than if the price of clothing had remained constant. If, as is in this example, it is difficult to see why the price of clothing should have any relation to the costs that regulated companies incur, the regulated company may well suffer as a result of the change in the rate of growth in RPI.

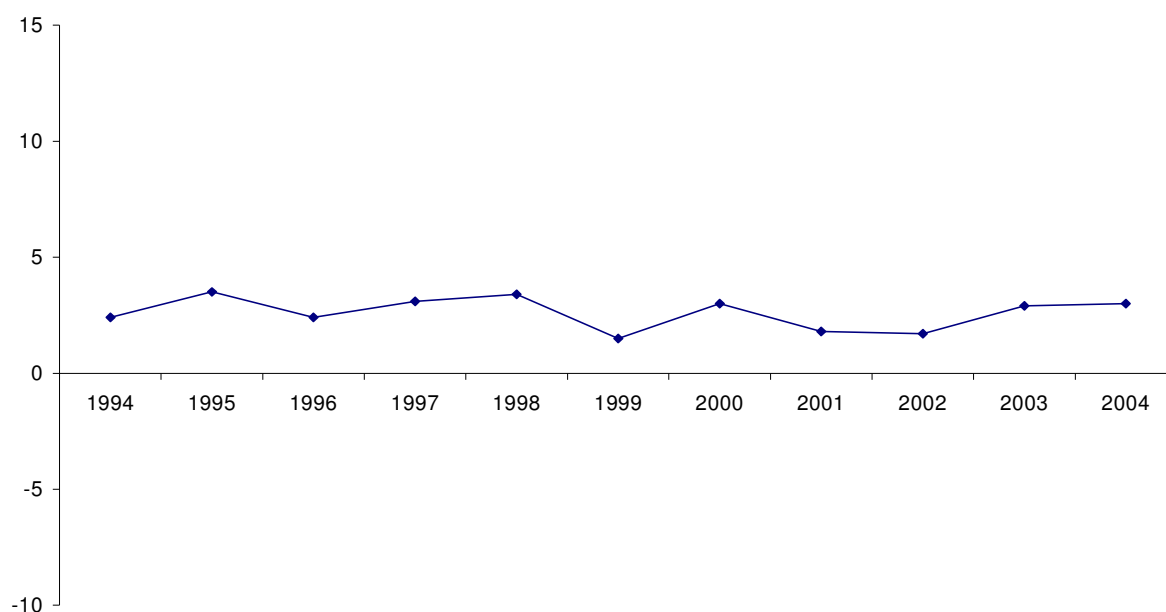
This illustration highlights how important it is that regulators understand the composition of RPI and the reasons why it is changing from one year to the next. Changes in prices in industries that bear little relation to the utility sector may reveal very little about the pace with which regulated companies can force down costs, while at the same time there may be strong correlation between the underlying reasons for changes in prices in other sectors and the cost pressures facing regulated firms. Even if inflation is relatively stable, changes in the way in which different industries contribute to RPI growth may have a significant impact on the benchmark levels of input price control and productivity improvement that regulated firms are being asked to match.

### 3. RPI growth over the last ten years

It is our view that the last decade has seen exactly this sort of change in the contribution of different sectors to the annual rate of inflation. In particular, we think that RPI has been held down in recent years by reductions in prices in sectors that are largely incomparable to most regulated companies.

Figure 1 shows the annual rate of inflation between 1993 and 2004. During this period, which begins shortly after the UK's exit from the ERM and the introduction of a formal government inflation target, RPI growth has been quite stable at around 2.5% per annum. Going forward, few, if any, experts or forecasters would dispute predictions that RPI inflation will remain at this level.

**Figure 1: Annual rate of growth in RPI (%), 1993 to 2004**

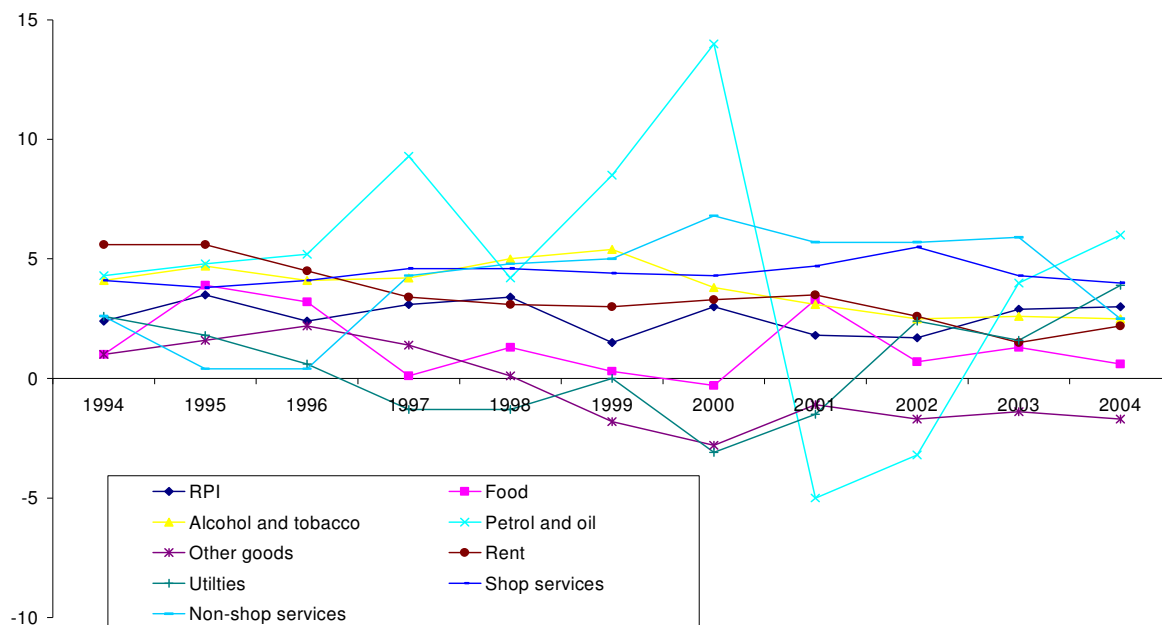


Source: *ibid.*

Despite the recent overall stability in RPI growth, figure 2 shows that the component parts of the index have shown much greater volatility. The graph separates RPI into the 8 main sectors that

the Office of National Statistics divides the economy into in their monthly 'Focus on Consumer Price Indices' report. Among these sectors, it is possible to see the rate of sector-specific inflation accelerating and decelerating over time, with growth in RPI being driven by different sectors at different points in the period.

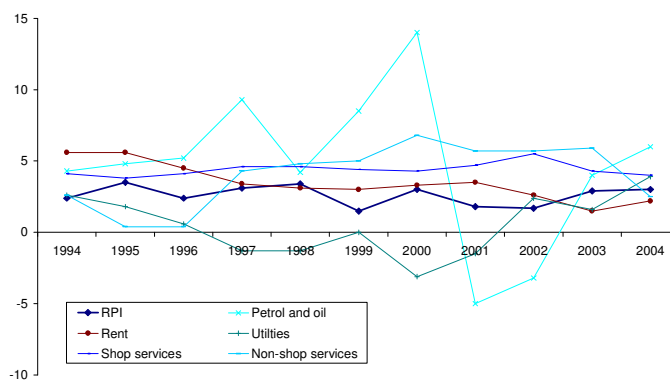
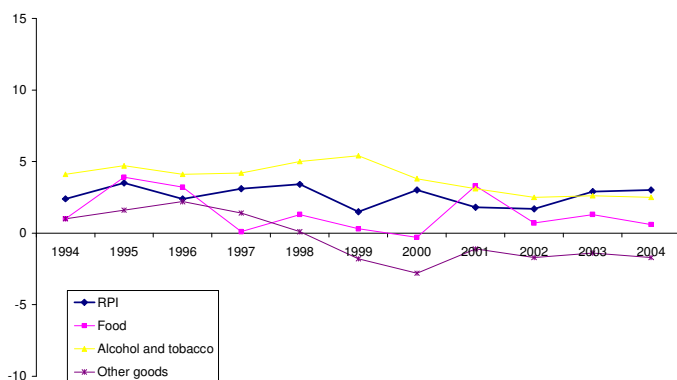
**Figure 2: Annual rate of growth in the RPI index (%) by component, 1993 to 2004**



Source: *ibid.*

Figures 3 and 4 highlight the key issue that should interest regulators and companies in the utility sector. On the left-hand side, figure 3 picks out three sectors in which prices have over time begun both to grow at a much slower rate than in the past and where annual inflation appears to stand now at a significantly lower rate than the overall growth in RPI. The three sectors concerned are alcohol and tobacco, food, and other goods<sup>2</sup>, which together make up around half of the index. On the right-hand side are the other sectors where there is less of an obvious pattern in the rate of inflation over time, but where (with the exception of the utility sector itself) price increases generally appear to have matched or begun to exceed the rate of growth in RPI.

**Figures 3 and 4: Annual rate of growth in the RPI index (%) by component, 1993 to 2004**



<sup>2</sup> Comprising DIY materials, coal and solid fuels, clothing and footwear, personal articles, chemist goods, purchase of motor vehicles and leisure goods.

What these graphs reveal is a situation in which RPI growth has been maintained at an average of 2.5% since the late 1990s only as a result of sustained reductions in the prices of goods such as food, new motor vehicles and clothing. Had it not been for lower prices among these goods, accelerating growth in prices in the service sector would have resulted in much higher growth in RPI than was actually witnessed.

For regulated companies striving to meet efficiency targets set by their regulators, price reductions in distant parts of the UK economy are entirely unhelpful. Higher growth in RPI would have seen initiatives to cut costs translate into much greater real-term reductions in opex; instead, RPI has become a considerably tougher benchmark to outperform than in the past. This would not be such an issue if the sectors in which prices were falling were ones in which utilities were active purchasers or where it could be said that the underlying drivers of improvements in productivity of reductions in input price inflation would spill over into the regulated company's own costs. However, goods like food, new motor vehicles and clothing are not items with immediate relevance to opex in most regulated sectors – if anything, trends affecting the service sector matter most to regulated companies as far as opex is concerned and here inflation has actually accelerated since the mid 1990s.

To give a rough indication of the overall effect on the savings that a company must achieve in order to meet its regulator's targets, we have attempted to calculate what RPI-measured inflation would have been in the period 2000 to 2004 if the rate of inflation in the prices of six broad categories of goods had remained at the level seen in the period 1993 to 1999. The results are shown in table 2, below. It shows that, in total, changes in the prices of these goods knocked approximately 1% off RPI growth after 1999. All other things being equal, in the absence of any change in the rate of inflation among these goods, regulated companies would have been able to report additional real-term efficiency gains of around 1% per annum in the five years to 2004.

**Table 2: Effect of changes in price inflation in different sectors on the headline rate of RPI**

Items	Average annual rate of inflation, 1993 to 1999 (A)	Average annual rate of inflation, 2000 to 2004 (B)	Difference (B) – (A)	Average weight in RPI, 1993 to 2004	Effect of difference on annual RPI growth
Motoring expenditure	3.3%	0.9%	-2.4%	0.137	-0.33%
Food	1.6%	0.5%	-1.2%	0.128	-0.15%
Alcohol and tobacco	4.7%	2.9%	-1.8%	0.104	-0.19%
Household goods	1.6%	0.4%	-1.2%	0.073	-0.09%
Clothing and footwear	-0.2%	-3.4%	-3.2%	0.055	-0.17%
Leisure goods	-0.6%	-3.1%	-2.6%	0.047	-0.12%
Total					-1.06%

Source: ibid and First Economics' calculations.

The conclusion to take from this short piece of analysis is as follows: the benchmark from which all regulated companies' efficiency targets start – the annual rate of growth in RPI – has in recent

times come to capture quite significant improvements in input price control and/or productivity among firms that bear little resemblance to a network monopoly business. This has offset much less impressive input price control and/or productivity improvements in the rest of the UK economy and meant that RPI inflation, despite remaining constant at around 2.5% per annum,<sup>3</sup> has become a less relevant indicator of the cost trends facing most regulated firms. As a consequence, holding opex constant in real terms has probably become more difficult and any opex savings that companies have been able to report since 2000 have almost certainly been much harder to achieve than in earlier years.

#### **4. Next steps**

We have not seen this issue receiving any real attention in recent periodic reviews. When setting efficiency targets, regulators have come to rely on a combination of:

- (static) benchmarking analysis, designed to reveal the gap at a given point in time between a regulated company's performance and the efficiency frontier for that industry; and
- so-called 'top-down efficiency analysis', relating the scope for future cost savings across an industry as a whole to efficiency gains and productivity improvements seen in other sectors in the 1980s and 1990s.

Neither of these types of analysis has considered the changes in the drivers of RPI inflation that we identify in this paper. It is possible, therefore, that cost savings implied by recent benchmarking analysis will be partly offset by a growing differential between industry-specific inflation and the growth in RPI.

In future periodic reviews, we think that assessments of the extent to which growth in RPI will be a representative benchmark against which to judge the scale of future efficiency improvements should be an explicit part of the review process. Some specific thoughts on this matter are set out below.<sup>4</sup>

##### **4.1 Top-down efficiency analysis**

Using the past achievements of other firms and industries to guide decisions about the extent to which a firm under review might be able to make savings of its own has in recent times come to be a major part of the periodic review process in all of the regulated sectors. Our view is that the evidence that has been compiled to date is flawed in a number of important respects:

- first, as shown clearly in section 3, the benchmark set by RPI changes in nature over time. Reducing costs in real terms may well have been more straightforward in the 1990s than it is today and, hence, the past performance of other regulated firms may not be the best guide to future savings;
- second, most top-down efficiency studies focus their attention too narrowly on identifying trends in total factor productivity growth rather than trends in final prices. Evidence that industries with characteristics that are similar to the firm under review have in the past outperformed the rate of growth in total factor productivity across the UK economy as a whole is taken as evidence of scope for real cost savings. However, this is only half of the story

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<sup>3</sup> Between 1993 and 1999, the average annual rate of RPI-measured inflation was 2.56%; between 2000 and 2004, the annual rate of inflation was 2.45%.

<sup>4</sup> We continue to focus on opex in this discussion, although the arguments apply equally to capex efficiency.

and analysis of the other main driver of RPI – input price changes – is usually cursory and superficial; and

- third, none of the studies that we have seen have sought to look beyond the UK at the way in which changes in input costs and productivity in overseas countries are reflected in RPI. If, as seems likely, reductions in the prices of goods such as clothing and footwear have been driven by fast-improving productivity and the growing use of cheap labour abroad, regulators will have understated the extent to which cost reductions are already captured by RPI.

We think that these problems can be overcome by changing the focus of top-down efficiency analysis to a much more up-to-date analysis of the component parts of RPI. In section 3 we identified constituents of the index that appear to bear little resemblance to a normal regulated company – this leads naturally to a detailed consideration of which components do reflect the pace of input-price inflation and productivity improvement that are likely to affect a regulated industry.

‘Nature-of-work’ comparisons are already an important part of the periodic review process and our suggestion is simply that the focus of this type of exercise shifts to the real-time RPI data set and away from an increasingly old data set on total factor productivity improvements.<sup>5</sup> If these comparisons reveal that competitive sectors of the economy with characteristics that are similar to the nature of the activities carried out by the firm under review are generally seeing prices rise faster than RPI-measured inflation, this would imply that efficiency targets should soften. Conversely, if such sectors are seeing prices rise more slowly than RPI, this would provide evidence for setting targets that require real-term reductions in costs.

#### **4.2 Bottom-up efficiency analysis**

Most regulators do not like to rely solely on top-down evidence when setting targets. Instead, they prefer to look at efficiency from a number of different angles and set opex allowances based on the overall picture emerging from a number of different studies. In the specific context of analysing the rate at which an industry’s opex efficiency frontier will move out over time, however, very little work has been carried out in order to understand whether network monopolies are firms that have inherent potential to outperform RPI or whether, in the long term, opex is by its nature more likely to increase in real terms over time.

This is becoming an increasingly glaring omission in industries that were privatised a relatively long time ago – namely airports, gas, electricity and water. In their most recent reviews, all of the firms in these sectors were set targets that demanded real reductions in unit opex over a five-year period. When justifying these targets, most regulators referred to a continuing ‘privatisation effect’, but this phenomenon cannot last forever and before long regulators will have to ask why firms that have been in the private sector for 20 years or more should be expected to out-perform the rest of the economy. We think that it would be helpful if this debate included at least some consideration of the ultimate drivers of productivity improvement and input-price inflation in the utility sector, along with comparisons to the drivers affecting the rest of the economy. Questions to answer would include:

- how fast is the rate of technical progress affecting the utility sector;

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<sup>5</sup> It is notable in this regard that even the most recent top-down efficiency report, a study published by Postcomm in June 2005, makes use of the NIESR data set covering the period to 1999 only.

- to what extent will utilities benefit from greater economies of scale and/or capital substitution than other firms; and
- are there reasons to believe that the labour markets which utilities recruit staff from will be tighter or more flexible than elsewhere?

### 4.3 Labour costs

One of the issues that regulators would be forced to confront when carrying out the bottom-up analysis is the very slow rate of growth in average annual earnings in the utility sector during recent years. Table 3, which compares wage growth in the utility sector to RPI-measured inflation and wage growth across the whole of the UK economy, shows this phenomenon.

**Table 3: Growth in average earnings including bonuses (%), 2000 to 2004**

Sector	Growth
Health and social work	26.7
Hotels and restaurants	22.3
Mining and quarrying	21.9
Agriculture, forestry and fishing	21.6
.....	.....
Other manufacturing	12.2
Electricity, gas and water	10.6

Source: Office of National Statistics (2005), Labour Market Trends.

Between 2000 and 2004, average earnings grew by 16.7% or about 4% per annum (which, incidentally, represents an increase on wage inflation of around 3.5% seen in the mid 1990s). Among the 20 sectors of the economy for which the Office of National Statistics reports figures, it turns out that earnings growth was slowest in the electricity, gas and water sector, at 10.6% over four years or about 2.6% per annum. In fact, average earnings in this sector barely kept pace with RPI, which grew at 2.3% per annum over the same period.

Because this is a relatively new data set,<sup>6</sup> it is dangerous to read too much into these numbers without first carrying our further investigation. In this analysis, there would appear to be two main hypotheses to pursue:

- the first explanation is that the labour market in which network monopolies recruit is one with an inherently lower rate of wage inflation than the rest of the economy; or
- alternatively, regulated firms responded to tough efficiency targets in the period 2000 to 2004 by holding down salaries at below market rates.

If the first explanation is correct, efficiency targets should in future recognise that utilities are likely to out-perform the average level of input price control embedded in RPI. If, however, the second explanation is more accurate, regulators need to think about the implications for customers and future quality of service.

<sup>6</sup> The ONS data series from which the figures in table 3 are taken begins only in late 1999.



## 5. Conclusion

This short discussion paper has shed some light on one of the least exposed areas in economic regulation. Knowing what it means to index allowed revenues in line with RPI and to set efficiency targets that require opex to fall in real terms is an essential part of any periodic review, and yet there has been only very limited discussion in recent years about the composition of RPI-measured inflation and its relevance to regulated companies.

The analysis set out above shows clearly that there have been fundamental changes in the UK economy since the late 1990s. As a result, RPI has become a tougher benchmark to compare regulated companies against. In circumstances where the goods sector of the economy is now making virtually zero contribution to inflation, we think it is important to ask whether the level of input price control and productivity improvement embedded in RPI isn't a great deal more challenging than has previously been recognised. Our preliminary conclusion is that the changes in the composition of RPI growth, especially the drop in the rate of inflation affecting the goods in table 3, has made it more challenging for regulated utilities to hold their opex in real terms. Targets for reductions in opex will therefore be much tougher to meet than in the past – a rough rule of thumb, drawn from table 3, might be that an additional 1% of productivity improvement must now be found in order to meet any given efficiency target.

We would expect this issue to be explored in much greater detail in future reviews and we have set out above some ways in which the analysis might be taken forward. For the time being, we are skeptical that mature regulated companies, by their very nature, will automatically go on reducing opex in real terms. The burden of proof now falls on regulators to show why this should be the case.

### **About the authors**

First Economics is an economic consultancy that advises regulators, companies and government bodies on a wide range of regulatory, economic and financial issues. This paper is the second in a series looking at live issues in regulation. The first – on the subject of financeability – can be found at [www.first-economics.com](http://www.first-economics.com).