Global Forum on Competition

COMPETITION AND EMPLOYMENT

Note by Victor D. Norman

-- Session I --

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COMPETITION AND EMPLOYMENT

1. **Introduction**

   1. Labour is a scarce resource. There are more useful tasks that could be performed than there are people to carry them out. It is not, therefore, difficult to find employment per se. What is difficult is to find productive and relevant employment; specifically to find employment that is sufficiently productive to warrant the wages (and corresponding living standards) that individuals expect, aspire to, or have become used to.

   2. With this in mind, it is surprising that it should be necessary to ask if competition fosters employment. The record of the world economy since the (Dutch) economic revolution in the 1500s shows that a well-functioning market economy is the best (and possibly the only) tool for productive job-creation. And the essence of a well-functioning market economy is competition.

   3. At the meta level, therefore, the link between competition and (productive) employment is clear and unambiguous. Not even Schumpeterians, who correctly argue that there will be incentives for innovation only if the innovator can reap the reward, and who go on to argue that innovators therefore must have market power of some kind (patent, copyright, protected brand name or control of entry), would disagree with this: Schumpeter himself believed that we can do without competition for individual products so long as monopolists have to compete with producers of other products for the budgets of consumers, for capital, and for labour.

   4. The question I shall address in this paper is not, therefore, whether competition in general is good for employment. I shall address a set of smaller, more specific questions: Will increased competition make individual firms employ more or fewer people? Does competition in a single industry or single market (however these might be defined) increase or decrease employment in that industry or market? Will overall demand for labour in the economy, for a given wage, increase or decline if markets generally become more competitive?

   5. The answers to all of these questions are ambiguous, both theoretically and empirically. The source of the ambiguity is, however, quite different in the case of a single firm or a single industry, and in the case of the economy as a whole. For a single firm or a single industry, the effects of increased competition depend critically (a) on the nature of the imperfections which give rise to a lack of competition in the first place, and (b) on the further imperfections that arise because there is a lack of competition. The world can be perfect in only one way, but it can be imperfect in an infinite number of different ways, and this multitude of combinations of imperfections manifest themselves both in models of firms and markets and in the real world that these models attempt to capture. For the economy as a whole, on the other hand, the ambiguity has less to do with the nature of imperfections and more to do with (a) the overall degree of competition in the economy, and (b) the relative degree of competition in different parts of the economy.

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2. Single-industry effects

6. If you ask a person in the street whether increased competition in an industry will create or destroy jobs, the most common answer would probably be the latter. It is a widespread perception that firms scale down production and employment when faced with stiffer competition, and few newspaper readers (or journalists) believe that the newcomers who challenge existing firms create more jobs than the number lost in the firms that disappear.

7. If you ask an undergraduate student of economics the same question, the answer would (hopefully) be the opposite: Increased competition means lower prices, and lower prices means increased sales and production, and increased employment will follow. Any other answer, if given on an exam in first-year study of Econ 101, would qualify for an F.

8. Does that mean that the popular perception is wrong and the Econ 101 answer is right? Not necessarily. What it means is that the model of competition in the minds of most people differs sharply from the highly simplified and stylised model we present to first-year students. Graduate students in economics know this full well. They would be likely to respond to the question with the standard, safe reply: “That depends.” So the first question I shall explore is on what it depends.

Firm-level effects

9. Let us start with the Econ 101 model, where a profit-maximising firm faces a downward-sloping demand curve and exogenously given wages and other prices of inputs and intermediate goods. In such a model, a firm with market power will necessarily produce and sell less than a similar firm without market power; it will as a consequence also employ more of all factors of production (including labour) the tougher competition it faces.

10. There are, as Nickell (1999) points out in an excellent survey on competition and employment, two complications that could lead to a different result.

11. One is inefficiency and labour hoarding in firms with market power — or, as Nickell quotes Sir John Hicks as saying: “The best of all monopoly profits is a quiet life.” Market power generates rents, and rents attract rent seekers. Employees are in a particularly good position to capture a share — through formal, collective bargaining, or informally by reducing work effort or engaging in varieties of organisational rent-seeking games. The effect is likely to be a combination of over-manning and higher wages.

12. Nickell cites evidence from 10 OECD-countries on the elasticity of wages at the firm or industry level with respect to revenue per employee. The elasticities are positive in all countries, with an average of around 0.15. To the extent that revenue per worker is a good proxy for monopoly rents, this suggests that there could be significant rent-sharing between owners and workers in firms with market power. The differences between countries support this: The wage effect of higher earnings at the firm or industry level is much lower in countries with centralised bargaining (the elasticity ranging from 0 in Finland to 0.04 in Sweden) than in countries where wages are negotiated at the firm or industry level (0.3 in the US and Canada).

13. A possible interpretation is that workers can and do appropriate (some of) the rents in firms with market power in product markets, and that they do so by negotiating higher wages in countries with local bargaining, but have to do it in other ways in countries where wages are set centrally. If so, we should be more likely to see overmanning and underemployment in countries with centralised bargaining.
14. Competition will weaken the incentives and lessen the scope for rent-seeking for companies; if so, overmanning or underemployment will be reduced. The reduction could in principle more than offset the positive employment effect of increased production and sales.

15. The other possible complication has to do with so-called efficiency wages; i.e. wage premia over the going market wage paid to motivate or select workers as a result of the information asymmetry problem that all managers face. Efficiency wages are paid when firms cannot perfectly monitor the effort of workers or the qualifications of job applicants. Rather than invest heavily in monitoring and screening, it is then more profitable to pay a wage premium which the worker will lose (along with the job) if he is caught shirking or if he is not up to the job. Perhaps the best known example is the 5-dollar wage which Henry Ford started paying his assembly workers in 1914 (when the typical daily wage in US manufacturing was around $1.50) in order to make them concentrate on the job and to reduce staff turnover.

16. A firm paying an efficiency wage premium will hire fewer people that it would have hired had there not been monitoring and screening problems. In that sense, efficiency wages reduce employment. Given that monitoring and screening are real problems, however, it is likely that we would have had to do without many jobs (and firms) without efficiency-wage arrangements. It is unclear, therefore, whether the practice of paying efficiency wages is positive or negative for employment. Our concern here is not about the employment effect of efficiency wages, but about how efficiency-wage arrangements affect the employment effects of competition.

17. A more competitive environment could make it necessary for the firm to pay a higher wage to attract the right people or to maintain motivation and job effort. If so, fewer people would be employed. Nickell argues that this effect is unlikely in the case of a single firm, because in the most common efficiency-wage models, the wage premium a firm will have to pay to motivate or screen employees depends only on the outside option that employees have (i.e. the alternative jobs they could apply for and the wages paid in those jobs) — and the action of a single firm will not affect the outside option.

18. If workers think that the quiet life that monopoly permits is to be had by all, however, a higher wage may be necessary to rid them of that idea — e.g. make them understand that they have a stake in the survival of the firm -- once competition sets in. If so, some of the direct, positive employment effect of increased competition may be offset by the firm paying a higher wage.

19. If we believe in the empirical evidence cited by Nickell, however, any efficiency-wage effect at the firm level must be small relative to the rent-sharing effect. Efficiency-wage premia are, by definition, determined locally. If the efficiency-wage effect had been the dominant one, therefore, we should have expected roughly the same elasticity of wages with respect to firm earnings in countries with central and local bargaining.

20. For single firms, we therefore seem left with two effects of competition: The new jobs generated by the increased productivity or “Econ 101” effect; and the reduction in superfluous jobs and underemployment of people that follows from a reduction in monopoly rents. Note that these two effects are qualitatively different. The “Econ 101” effect is the creation of fully productive jobs; the rent-reduction effect is the removal of unproductive ones. If the aim of economic policy is to create productive employment, both effects are positive (it may, in fact, be more positive to remove unproductive jobs than to create new ones.
Industry-level effects

21. The effects for a single firm carry over to an industry or a market with several firms: There will be an “Econ 101” effect: The more competitive the market, the lower will be the price and the higher will be the volume of sales, production and employment. On the other hand, possible over-manning will be reduced as monopoly rents vanish, and firms may need to raise wages to motivate workers for maximum effort.

22. The efficiency-wage effect is, however, likely to be greater at the industry level than at the firm level, and for two reasons. First, the outside option of employees is given (exogenous) when we look at a single firm, but not if we look at the industry as a whole. Second, the character of the industry-level labour market could change as the product market becomes more competitive: As shown by Amable and Gatti (2004), in an industry subjected to external shocks, increased competition will raise the turnover rate (both the hiring rate and the separation rate) for workers. As a result, jobs will become less secure. If so, all firms in the industry will have to pay a higher wage premium to attract workers from other industries.

23. In addition, as we move from a single firm to the industry as a whole, there will be effects through changes in the composition of firms. As competition increases, less efficient firms are likely to be replaced by more efficient ones. This is not only a possible by-product of competition — it is also one of its most important functions. Because inefficient firms are likely to employ more people (per unit sold) than efficient ones, the net effect could easily be lower total employment in the industry. In fact, the more effective competition is in removing inefficient firms, the more likely is this result, as least in the short run.

24. The scatter in figure 1, taken from Brouwer and Wiel (2010), demonstrates the point: It plots, for Dutch firms in different industries, the variance of average cost against the degree of competition. Clearly, the likelihood of survival for high-cost firms drops sharply as competition increases, indicating a strong firm-selection effect of competition.

25. Taking all of these factors into account, there is no reason to believe (as a general proposition) that competition creates jobs — it is just as likely that the net effect, in any particular industry, is fewer jobs. It will, however, raise the ratio of productive to unproductive jobs; and that is fundamentally more important than the effect on the sum of the two.
3. **Economy-wide effects**

26. One of the reasons it is difficult to find (positive) employment effects of competition at the industry level is that the effects may manifest themselves in other parts of the economy. To see how and why, consider the scatter diagram in Figure 2 (overleaf). It plots, for the main industries in Norway, growth in employment against growth in (labour) productivity — both measured as the deviation from the average for all industries — over the period 1990-2010. Had the employment effects of higher productivity been a straightforward generalisation of the effects we expect at the single-industry level, the scatter should have had industries in the southwest and northeast quadrants: Just as we expect firms with high productivity growth to grow at the expense of firms with low productivity growth, it seems plausible that industries with high productivity growth should replace those with low growth in productivity.

27. In fact, the opposite is the most prominent feature of the scatter: Of the three industries with the highest growth in productivity, two have lower employment growth than the average and one is just barely above. Of the industries with productivity growth well below the average, several have seen a very substantial increase in employment.
To some extent, the apparent paradox has to do with the source of the growth in productivity: One of the three productivity high-flyers is banking and other financial services, where the main source of the growth in productivity is the transition from manual to electronic services, i.e. a purely labour-saving new technology. As a result, the share of financial services in total employment has fallen, but not its share in total production.

The chief explanation for the scatter is, however, the productivity growth itself — specifically the effect, first pointed out by Baumol and Bowen (1966), of asymmetric growth in productivity: Higher productivity generates higher income, and higher income will be spent on all normal goods. If productivity rises in one part of the economy only, therefore, the extra income generated will be spent on goods in all parts of the economy. To meet the higher demand, the industries with unchanged productivity will have to hire more people. The higher-productivity industries, on the other hand, can meet their share of the higher demand with fewer people than before, since in their case, the increased demand is less than the increase in their productive capacity. Paradoxically, therefore, employment will decline in industries with high productivity growth and rise in industries with low productivity growth.

Data source: Statistics Norway
Sources of economy-wide effects

30. The Baumol effect (sometimes also, misleadingly, called the Baumol “disease”) shows the need for caution in generalising from single firms or industries to the economy as a whole. The effect of competition on employment is not the sum of the effects in each industry. There are four additional effects that must be taken into account:

31. First, there will be Baumol-type income effects: Increased competition raises real income, and the recipients will spend that income on all normal goods. As a consequence, more competition in one part of the economy will generate new jobs in other parts of the economy.

32. Second, there will be labour-market effects. If greater competition makes firms in one part of the economy expand, and in the process employ more people or pay higher wages, and if these firms in sum constitute a significant part of the whole economy, the expansion will affect wages in the rest of the economy. As a result, jobs could be lost in other parts of the economy, and it could well be that the net labour market effect for the economy as a whole would be lower total employment.

33. Third, there will be effects through capital markets and investment. More competition may lower the average profits of the firms in an industry, but it will raise the marginal return on investment: The marginal return is the marginal product of capital times the marginal revenue of production, and because increased competition reduces the wedge between price and marginal revenue, the latter will rise. Competition in an industry will therefore stimulate investment in that industry. To the extent that the firms compete for capital with firms in other parts of the economy, the result could be lower investment in the rest of the economy.

34. Fourth, in an open economy, there will be effects through international trade and investment. These could be of different types, so let it suffice with one example: In imperfectly competitive industries, there are strong incentives for price discrimination and market segmentation. A typical pattern is reciprocal dumping (Brander and Krugman (1983)): Firms exploit market power at home by charging high prices and restricting the volume of sales, and at the same time selling large volumes at low prices abroad. If that is the case, increased competition will shift sales from exports to domestic markets. In an underemployment equilibrium that could, paradoxically, stimulate production and employment in other parts of the economy: Reduced exports would depreciate the currency, which would stimulate exports and import-competing production in all parts of the economy.

Context specificity

35. One important thing to note about these economy-wide effects is that they are context specific: The effects of competition on the economy as a whole depend on the macroeconomic context. If the economy is in a state of general equilibrium, with flexible prices clearing all markets, all four channels of effects will be at play. In that state, the interesting question is not whether increased competition (in particular sectors or in the economy as a whole) raises employment — wage and price flexibility will ensure full employment whether there is perfect or imperfect competition in product markets. The interesting questions in that context are how competition affects productivity and incomes of wage earners and others. If, at the other extreme, the economy is in a state of Keynesian unemployment, labour and capital markets do not constrain production, employment and investment. In that context, only the demand effects (Baumol) and the sales shift effects (Brander-Krugman) of increased competition are relevant. Between the two is what might be called the normal macroeconomic state, in which capital and labour markets matter, but where neither wages nor real interest rates adjust instantaneously to external shocks.
36. So which context is relevant when assessing the importance of competition and competition policy? Normally, not the Keynesian one. If the employment problem is one of insufficient demand, the obvious solution is to stimulate demand through fiscal and monetary policies. The fact that competition — through the Baumol- and Brander-Krugman channels — could have a positive effect on employment even in a Keynesian setting, does not mean that it is a good instrument for fighting unemployment.

37. There is one possible exception. Competition will, as we have seen, normally induce increased investment by firms. In a state of Keynesian aggregate demand failure, that could be important not only at the firm or industry level: In such a state, increased investment by one group of firms will not crowd out investment in other firms, so there will be a net addition to aggregate investment. If this effect is large, competition could conceivably – through its effect on aggregate demand – have important and relevant effects on aggregate employment as well.

38. A similar argument can be made for the standard macroeconomic context. Competition policy is not, and should not, be in the tool kit of those set to handle the short- to medium-term disequilibria that are normal features of economies subjected to a continuous series of small and large external shocks. Competition and competition policy could, however, be important tools to make the underlying real economy more robust to shocks and more flexible in the face of such shocks. For that reason, the macro context is relevant.

39. So, of course, are the full-fledged, long-term equilibrium effects on industrial structure — the types of effects illustrated by the Baumol effect. They may not be important for employment in the long run, wages are likely to be flexible whatever the institutional set-up for wage settlements — but they are important for the structure of employment and for productivity and real wages.

Medium-term interaction between product market and labour markets

40. Much of the macroeconomic literature on competition and employment is about how institutional arrangements in product markets and labour markets interact in determining wages and employment. A good example is an empirical study by Fiori et.al. (2012). It uses data from 20 OECD-countries to study how the employment effects of deregulation of product markets (i.e. more competitive product markets) depend on the regulatory regime in the labour market. They conclude that the net employment effect of more competitive product markets is more likely to be positive in countries with tight regulation of labour markets than in countries where labour markets are deregulated.

41. The result, phrased this way, may sound paradoxical. It is not. In a well-functioning labour market, wages adjust to clear the market. To the extent that increased product market competition has an effect (positive or negative) on aggregate labour demand, therefore, wage adjustments (up or down) will dampen the effect — and neutralise it completely if labour supply is inelastic. In a labour market where wages are rigid, on the other hand, there will be a one-to-one correspondence between effects on labour demand and effects on employment. The same holds for public regulation of labour: If, for example, working hours are rigidly regulated, a change in labour demand will have a greater effect on the number of people employed than if working hours are flexible; so, again, the effect of more competitive product markets on employment will be greater the more rigid the labour market.

42. While this result is interesting by itself, the more important question is whether (and if so, how) product market competition affects that degree: Does competition in product markets affect wage formation in ways that would foster employment? The answer, given among others by Blanchard and Giavazzi (2003), and supported empirically both in the Fiori et.al. study and in other studies (for a survey, see Schiantarelli (2008)), is yes: Competition limits the incentives and scope for rent-seeking at national level, just as it does at the firm level. In bargaining over wages in highly unionised economies, therefore,
we should expect increased product market competition to yield a downward pressure on wages. As the monopoly rents vanish, the ability of employers to pay wages will also be more sensitive to external shocks; with that bargained wages are also likely to become more flexible.

43. In countries with centralised bargaining, this has been recognised for so long that it is part of the institutional bargaining set-up. The Norwegian bargaining model is, perhaps, the best example (see Calmfors (1990) for discussions both of the Norwegian and the other Nordic wage formation models): Wages are negotiated sequentially — first for export industries, with a bargain reflecting productivity and international prices, and then for other sectors, based on a general acceptance that these settlements should reflect the export-industry settlement. If and when the model works, it limits rent-seeking (since the wage level reflects earnings in the part of the economy subject to international competition) and ensures wage flexibility (since changes in international prices rapidly affects domestic wages).

**Long-term structural effects**

44. The long-term effects of increased competition on the overall pattern of production and employment are the result of interaction between labour markets, capital markets and product markets at home and abroad. They will depend on how and where competition increases and on the nature and degree of competition in other sectors of the economy. To track the effects through purely qualitative analysis is therefore next to impossible — the only feasible route is through quantitative simulations using numerical general-equilibrium models. Pioneering work in that respect was done by Gasiorek, Smith and Venables (1991) in assessing the general-equilibrium effects of the 1992 internal-market program in the EU.

45. Some general insights are possible, however. The Baumol effect, discussed above, is one example. Another is about how the *general* degree of competition affects the allocation of resources and the economy-wide demand for labour.

46. Firms with market power will generally change their production volumes, employment and investment demand less when subjected to external shocks than corresponding firms without market power: Without market power, firms can respond to such shocks only by changing volumes (of production and factor use); with market power, they will typically respond with a combination of price and quantity changes, and the price responses will dampen the quantity effects.

47. If therefore, we compare an economy where all industries are imperfectly competitive to an economy with perfect competition in all industries, the allocation of resources in the latter will change more in response to external shocks than the former.

48. As an example, consider the effect of new and better technology in one part of the economy. If the general degree of competition is low, the industries directly affected will expand; but the expansion be will limited by the market power of the firms in the affected industries. They will pass on some of the gains from the new technology to consumers; but some will accumulate as rents in the firms. Reallocation of resources from other parts of the economy will be similarly limited. The net benefits to the economy from the new technology will be correspondingly smaller than it could have been.

49. Lack of competition does not only dampen the effects of external shocks — it also prevents an economy from fully exploiting its comparative advantage: With less than perfect competition in industries competing with foreign firms, domestic firms can survive even if they have a cost disadvantage.

50. If that is the case, more competition will mean a sharper division of labour between the home economy and the rest of the world. The effects on labour demand and wages will then depend on where the home country has its comparative advantage. In a country with (an initially underexploited) comparative advantage in labour-intensive products, resources will be reallocated to labour-intensive
industries, so labour demand will increase and the real wage will rise. In a country with comparative advantage in other products, labour demand and real wages will fall.

51. This effect is particularly relevant to the countries in Europe and elsewhere who are still in the process of reallocating resources from traditional, relatively labour-intensive manufacturing to more knowledge-based production in the face of competition from China and other labour-abundant economies in Asia. A more competitive environment within these countries (or within Europe as a whole) will (a) speed up the reallocation process, and (b) further reduce the demand (and the real wage) for low- and semi-skilled workers. This effect is at the heart of the concern, expressed by Stiglitz (2012), Piketty (2014) and others, that globalisation leads to greater inequality within developed economies.

52. Note that this is not a negative effect as such. On the contrary: The real income of the home country will be higher when its comparative advantage is exploited more fully, so the loss to low- and semi-skilled workers is more than offset by the gain to other groups in the economy. It requires active redistribution to compensate the losers, however; and without such redistribution, the fear of inequality and polarization may be well founded.

4. Conclusion

53. There are four conclusions that can be drawn on the effects of competition on employment.

i) The first is that competition leads to more efficient production and more efficient allocation of labour -- in part due to the direct effect of competition in product markets, and in part due to the positive effects that increased product market competition, by reducing the incentives and scope for rent-seeking, will have on labour markets. In some cases, more competition leads to greater employment in the firms and industries where competition increases; in others to higher employment elsewhere in the economy. It could well be that the net effect on total employment, or on employment for particular categories of labour, is negative (and thus calls for lower wages); but even in such cases, real income in the economy rises. The reason is that the reallocations induced by increased competition (within and between firms and industries) will shift labour from less to more productive employment.

ii) Competition will also, directly and through its effect on wage bargaining, make the economy more responsive to external shocks and more flexible in that response. That will, in most cases, be advantageous for employment by itself because it makes it easier for individuals to find new jobs when old ones disappear. It will also make it easier for governments to respond appropriately to macroeconomic shocks, because flexible labour markets make monetary and fiscal policy more effective.

iii) The third conclusion is that competition, in a situation of general failure of aggregate demand, could have a positive effect on aggregate employment through the positive effect it is likely to have on business investment.

iv) The final, and in many ways most important, conclusion has to do with the international competitiveness of firms and industries. Competition and international competitiveness are two different things, but without competition in domestic product markets it will be impossible to exploit fully the comparative advantage that domestic firms and industries have. If international competitiveness is to be robust, in the sense that it is based on production and exports of goods and services for which a country has a comparative advantage, a high degree of competition in domestic markets is a prerequisite.
54. All of these effects are relevant for OECD countries today. Many countries suffer from the combined effects of low investment (and subsequent aggregate demand failure), inflexible labour markets, and slow restructuring of industry in the face of increased global competition and new technology. Competition alone is no magic recipe for curing these ills, but it is hard to find any workable recipe which does not include more competition.
REFERENCES


