



Conference

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From Micro to Macro: Market Power, Firms' Heterogeneity and Investment

Jointly organized by CompNet, EIB, IMF, ENRI and IWH

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Conference – Short summary

A large part of recent research dedicated to market power highlights the importance of granular data and microfounded analysis. To explore and understand the insights gained from such analysis, the five organizing institutions/networks gathered at the European Investment Bank on March 18-19 to hold a joint CompNet-EIB-ENRI-IMF-IWH Conference titled “From Micro to Macro: Market Power, Firms’ Heterogeneity and Investment”.

To investigate how micro-data can help to improve the understanding of the effects of market power, five sessions, each taking a different angle on the topic, were held over the course of two days. Each session attempted to shed light on a number of puzzling macroeconomic trends present in the last three decades: sluggish investment, productivity slowdown, falling labour share or rising income inequality.

The first session investigates how financial constraints and investments play a role in the development of market power. There is a possible nexus with access to finance, from two points of view. The first is that the easier the access to finance (and this is positively related with firm size, but bigger could well stand for well known, with an established relation with the financial intermediaries) the higher the mark-ups charged. The second is related to the impact of access to finance on start-ups.

This was a recurrent theme during the conference, because start-up and firms’ demography play a role in shaping the evolution of mark-ups, influencing the relationship between market leaders and the other firms. This role was highlighted in two papers regarding specific countries episodes, while, on a theoretical point of view, the need of including the analysis of firms’ demographic trends was strongly highlighted during the discussion.

The second session focused on cross-country analysis. The papers presented highlighted that the trend of rising mark-ups and growing distance between the top firms and the rest is clear in the US, but more scattered in other areas. It can be very similar for big, listed firms and in some advanced economies. For converging countries, such as eastern European countries, it can be however quite different, as for example their history is characterized by a growing integration in the global value chains.

The work focused on single countries discussed in session three highlighted the diversity of mark-up development in Europe. The first presentation highlighted the negative impact of globalization on mark-up dynamics in Poland. Presented evidence suggests that the participation in global value chains can create a negative pressure on mark-ups. The second presentation presented evidence of

the dynamics in Belgium, which not only seem different compared to the Polish case, but also to the US. In Belgium firms that increase their mark-up reduce their size, while the evidence for the US suggests that high mark-up firms increase their size and their market share.

Session four was dedicated to measurement issues regarding misallocation and concentration. It was convincingly highlighted that both, the measurement of revenue productivity dispersion and its association with misallocation, should not be straightforward. The issue of the reference market and the relationships with globalization and exports should be taken into account and further analysed.

The fifth session showcased the importance of considering in the market power discussion not only the product market, but also the input markets. It was suggested that input markets characterized by monopsony power cannot only explain a significant amount of the mark-up, but also of the labour share dynamics.

During the many discussions throughout the sessions and in the policy panel several further issues were raised. There was a lot of debate on the consideration that if firms that are able to charge higher mark-ups are more productive, invest and innovate more, there is nothing to worry about. If, on the opposite, higher concentration means less competitive pressures and hence, less push for innovation coming from a fierce competitive effort between the incumbent leaders and the challenging new firm's policy, actions are needed. There is some evidence that it has not happened yet in Europe, where competition policy seems to have played a role. Nevertheless, consensus persisted that the phenomenon of rising mark-ups and firms' growing heterogeneity has to be further analysed and kept under check.



Conference Report

The CompNet-EIB-ENRI-IMF-IWH Conference “From Micro to Macro: Market Power, Firms’ Heterogeneity and Investment” took place at the European Investment Bank in Luxembourg on March 18-19, 2019 and was co-chaired by Debora Revoltella (Chief Economist, EIB), Romain Duval (Advisor, IMF) and Filippo di Mauro (Chairman, CompNet). In their introductory remarks, all three emphasized that only the cooperation of the involved institutions made this event and excellent lineup possible and represented more than just the sum of the individual contributions. These institutions were brought together by the common understanding that the analysis of current secular trends requires an understanding on a much more granular level than most aggregated indicators can deliver. Firm-level or micro aggregated data is crucial in understanding the underlying dynamics of current economic developments and giving meaningful policy advice.

Given this understanding, the EIB and ENRI had a special interest in studying the real drivers of investment and how gained insights can be put into a policy perspective. The IMF is increasingly interested in using firm-level data to study market power. Many recent economic trends may have to do with increasing market power: sluggish investment, rising income inequality, productivity slowdown and falling labor share. Unlike other institutional factors, there is the feeling that market power might affect these trends simultaneously. CompNet was naturally interested in the drivers of competitiveness in the product as well as in the labor market and how firm-heterogeneity is affecting associated aggregate trends.

Session 1: Financial Constraints and Investment

C. Altomonte*, D. Favoino, T. Sonno: “Markups and Productivity under Heterogeneous Financial Frictions”

Motivation

Heterogeneity in access to external and its interactions with firms’ characteristics have macroeconomic implications. The paper includes heterogeneous financial frictions in a framework where there are endogenous mark-ups and firm’s heterogeneous productivity (a Melitz and Ottaviano (2008) framework). Firms have a liquidity constraint and before producing, they have to obtain a loan to cover a share of their production costs. In order to obtain the loan, they have to post a collateral. Then the firms enter the market and set profit maximizing prices and mark-ups. The heterogeneity lies in different costs of raising the

collateral, that depends on a variable called “financial capability”, a proxy of access to external finance. In the paper financial capability is “micro-founded” and the equilibrium mark-ups will depend also on financial capability. Financial capability and collateral requirements (exogenously set by banks) drive firm’s prices and mark-ups even after controlling for productivity and size.

Methodology

Tangible assets differ in terms of redeployability and some firms have better access to redeployable assets. This is the way heterogeneity in access to finance is microfounded (even though the same results could be obtained going back to the relationship lending literature). Firms with higher financial capability will have a cost advantage. Hence the mark-ups will depend on both marginal costs and financial access. On this basis the equilibrium mark-ups charged is *ceteris paribus*, an increasing function of financial capabilities. The identification of the effect related to financial capabilities is obtained observing that how each unit of size, and therefore of loans, translates in units of collateral, is an exogenous choice made by banks on the basis of industry’s variables (independently from each firms’ TFP). In the equilibrium mark-ups there are also a bunch of parameters informing about firm-bank relationship. The sign of the derivative linking market size and aggregate mark-ups is negative but depends on banks requested amount of collateral: tighter credit constraints contribute to an incomplete pass through.

Data for empirical analysis

EFIGE survey dataset (15K manufacturing firms with more than 10 employees in 7 EU countries interviewed during the financial crisis) plus Amadeus 2002-2013 for balance sheet info, plus Compnet for country-industry-years controls.

- 1) Non-parametric estimation of financial capabilities from data (checking the plausibility of results looking at correlation of the estimated measure with loans and interest paid.
- 2) TFP estimation, includes a number of controls (firms’ size and age, country industry etc.) plus a correction that takes into account financial capability.
- 3) The aggregate equilibrium is estimated and the prediction of the model is verified using an estimated equation augmented with a trade shock (due to the financial crisis).

Conclusions

- Conditional on productivity, more financially capable firms do not translate their entire financing cost advantage into prices (i.e. they set higher mark-ups)
- Heterogeneity in access to finance helps explain part of the dispersion in firms’ prices and mark-ups on top of production and size.
- In aggregate terms, for any given level of financial capability the amount of collateral set (exogenously) by the banks affects the pass-through of cost to prices. Tighter access to credit contributes to incomplete pass-through.

G. Gonzales-Torres, F. Manaresi*, F. Scoccianti: “Born in hard times: startups and Intangible capital during the financial crisis”

Motivation

During the recession, there was a significant drop in entry rates and a significant increase in exit, particularly among young firms. In the US in the period 2007-2009 entry rates dropped by 25% and exit increased by 15%. Southern European countries experienced similar changes but for a much longer recession. What are the macro implications of that?

- 1) The missing generation of new entrants tends to slow down the recovery.
- 2) Entering firms might be permanently scarred: the reason is that subdued demand in recessions hampers the learning process about demand characteristics of new entrants.
- 3) Financial crisis can induce a positive selection effect mitigating the two negative effects mentioned above.

Methodology and data

Previous studies in the literature focus on past recessions that were not accompanied by financial crises. This paper uses a long dataset (1996-2016) for Italian corporations, including a long period after the crisis in order to understand what happened to the firms born during the recession. Entry rates declined during the crisis and the firms that entered were hit by the crisis reducing their revenues and employment. However, they quickly caught up during the recovery, in this sense they show no “scars” effect. That said, these firms were structurally affected with respect to other firms born before the crisis: in particular they are structurally undercapitalized with respect to other cohorts. They have higher shares of intangibles-to-total capital and this is a persistent feature; it is associated with higher productivity, lower K/L ratio, lower leverage at entry. Entry rates dropped disproportionately more for firms that use tangible assets more intensively. The authors link this finding to the tightening in credit supply.

The authors construct a model with two types of capital (material and intangibles), two technologies and external financing costs. Intangible intensive firms in this model are more profitable and less capital-intensive. This implies that they are less leveraged at entry and, hence, less vulnerable to credit tightening. Hence, the cohorts born during the crisis are more productive because of two effects.

- 1) Between technology effect: they are more productive because their technologies are more intangible intensive.
- 2) Within technology effect: material/tangible intensive firms undergo a fiercer selection at entry.

These findings offer a solution to a possible micro-macro puzzle. Micro analysis shows that financial shocks affect negatively the intangibility of investment among incumbents: the share of intangibles to total capital decreases. However, macro data shows that the accumulation of intangibles during the financial crisis was more resilient than that of material/tangible capital. The evidence presented in this paper suggests that there is a differential impact on incumbents vs. startups and probably the increase in the intangible’s intensity of the startups dominates: young firms represent only 25% of total intangible capital but contribute for 64% to intangible capital formation.

During the crisis, the leverage of high intangible firms is practically unchanged, while low intangible firms see a significant drop in their leverage across the entire life distribution. In the paper, these facts are linked to the credit supply shock that happened through the freeze on the

interbank market in Italy; this is measured with data showing how much each province/sector in the Italian economy was exposed to this freeze.

Conclusions and policy implications

- Intangible intensity is a persistent feature. Correlated with high productivity
- Intangible intensive firms are more resilient to a financial shock because they are less leveraged.
- Emphasize the role of startup and young firm in capital accumulation, particularly intangibles.
- Provide age-related incentives (not size) to R&D and intangibles accumulation.

Discussion by Sebnem Kalemli-Ozcan (University of Maryland)

There is a clear increase in mark-ups and concentration in the US. In Europe this is much less clear. There are several interpretations of this macro trend. The first is related to market power. Increasing mark-ups and concentration imply an increase in firms' market power, lower investment and lower productivity growth due to lower competitive pressures. The second interpretation is a benign one and focuses on technology: why should we worry about that? In the end, superstar firms charge higher mark-ups because they are more productive, they use more intangible capital. There is a third interpretation that points to the fact that EU and US firms actually have access to the same technology and therefore differences in mark-ups reflect different competition policy. The fourth interpretation links together the firms' heterogeneity and the technology interpretations. Increasing aggregate mark-ups are due to superstar firms. They are able to charge higher mark-ups thanks to technological advances, particularly in the digital sectors.

In Europe, the technology interpretation seems to be a plausible explanation. Concentration increased in Europe, along with EU integration. Due to cross-border M&A, large companies grew further and gained market power.¹ The rise of concentration continued in the period 1999-2004 but reversed after the EU directive on cross-border M&A in 2004-2005. When comparing countries, we have to be careful on the data we use. There is a forthcoming work by IMF (and one recently released by Diez et al.) discussing the role of firm heterogeneity. These works show that mark-ups have increased in advanced economies but not in emerging markets. The increase is, however, smaller than the one shown in the literature that focus on US large firms. Focussing on large firms only, it is evident that high mark-ups firms are more productive and continue to grow. If you let the market do its job, it allocates more resources to high mark-ups firms because they are more productive. Firm heterogeneity is important for understanding mark-ups trends.

Paper 1. Key message, larger firms charge higher mark-ups BECAUSE they have better access to finance. The paper shows it in data and, in addition, the authors present a model with endogenous mark-ups that are directly linked to firm heterogeneity in access to finance. Everything is conditional on size and productivity. However, there remain some data issues and

¹ S. Kalemli-Ozcan stressed the importance of looking at consolidated accounts as well, when examining these issues, in order to correctly evaluate the role of large multinational companies. The reason is that 50% of consolidated accounts are due to large foreign firms.

problems with the approach to tackle endogeneity. Regarding the data, the cut of firms below 10 employees may be questionable.

It is not clear what the financial capability parameter θ captures. For cross-verification the authors use loans, interest expenses and the inverse of the index ASCL, but authors should control for demand because these are all equilibrium outcome variables. It is important to know what θ measures precisely because of the endogeneity problem. It is in two forms here: a reverse causality problem and an omitted variable problem. The first is just as in the Baqaee and Farhi paper: larger firms have more collateral and are going to charge higher mark-ups. Because they charge higher mark-ups, they are growing even larger and to have even more collateral. The authors want to be sure that larger firms charge higher mark-ups because they have better access to finance. What if larger firms charge higher mark-ups for other reasons, for example because they are exporters? To be fair, authors control for that in the cross section but this should be in the panel because they are time varying features. It is also important to relate these things to shocks potentially hitting firms.

Paper 2. The paper exploits exactly the heterogeneous reaction in access to finance during a crisis. Key message: firms born during the financial crisis are better. Firms with high intangible intensity are less affected by the shock because of this, and they are more productive. The paper is preliminary Very nice dataset, because it covers the universe of data and allows drawing conclusions for aggregate outcomes. That said, part of the mechanics should be clarified. The paper compares two steady states, and therefore a different approach could be using a DiD at the firm-bank loan level tracing the effect of the shock from bank to the firm differentiating the firms with intangible intensity. The interbank freeze is a shock with the appropriate characteristics.

Session 2: Cross-Country

The second session of the conference included studies showing cross-country evidence of rising mark-ups. It was chaired by T. Philippon (New York University) and G. Eggertson (Brown University). L. San Juan (Banco de España) and R. Duval (IMF) presented the two papers.

V. Salas, L. San Juan* & J. Vallés: “Corporate Economic Profits in the Euro Area and the United States: Market Power or Competitive Advantage”

Motivation

In the recent economic literature, some evidence has been given that rising profits (and declining labor shares) correlate with decreasing product market competition and increasing market power of firms. Apart from the problem of adequate measurement of production costs and profits the question remains if this increased market power could not be a consequence of increasing dispersion in the distribution of firms' productivity, with the most productive firms gaining market share relative to the least productive ones. The authors intend to provide new evidence on the time trends and the country differences in market power showing the relevance of choosing costs or profits shares to measure markups.

Methodology and Data

To this end they constructed a national database with labor costs, capital costs and profit shares for the corporate sectors of the four largest euro area countries (France, Germany, Italy and Spain) and of the United States over the period 1995-2016. Furthermore, they exploit industry-level information from the four euro-area economies coming from the CompNet database.

The authors test the hypothesis of rising market power in the euro area that, with the creation of the euro, the national corporate sectors compete in a single euro area market, where differences in national profits and markups have been progressively explained by national and industry differences in unit production costs (competitive advantages).

Conclusion

The key findings include a similar positive trend in profit shares of Germany and US, which is substantially different to the trend for other studied countries while the gap between them might be related to the monetary expansion conducted by ECB. The profit shares of corporate sectors in the rest of the euro area countries- France, Italy and Spain- differ and do not show any clear trend over time. Exploring the similarity of trends of US and Germany, authors find that in US market concentration appears to be the key driver of profit shares. While in Germany (since 2000), they are mainly driven by growing competitive advantage and the transition towards the single Euro-Area market

F. Diez, J. Fan and C. Villegas-Sanchez: "Global Declining Competition"
(presented by R. Duval)

Motivation

The authors try to shed some light on the question to what extent corporate market power has increased in the past around the world as well what the proximate drivers of the increase are.

Methodology and data

To this end, they use a dataset extracted from BvD's ORBIS data base that has been cleaned following an approach proposed by Kalemli-Ozcan et al. (2015). The data set covers firm data for 20 to 28 countries for the periods 2000-2015.

To calculate the markups, they use the method developed by De Loecker and Warszinsky (2012), based on firms' cost minimization problem. The necessary output elasticities are estimated using the control function approach pioneered by Olley and Pakes (1996) and Levinsohn and Petrin (2003).

Conclusion

The authors find a moderate global increase in markups (approximately 6%), which is concentrated in advanced economies as opposed to Central and Eastern European countries. This increase is mostly explained by firms in the top decile of the mark-up distribution, where the increase is equal to approximately 40%. Finally, they provide empirical evidence that there is a U-shaped relationship between size and mark-ups both in the cross-section sample and within firm, i.e. markups first decrease as firm size increases and only when a (very large) size threshold is reached, markups start increasing with firm size

Discussion by T. Philippon (New York University)

Tomas Philippon started with highlighting stylized facts for the EU and the USA, clearly pointing out that European countries and the USA do not have the same dynamics. In particular, unlike the US labor shares, labor shares are not declining in Europe. Additionally, market concentration also differs between those two economic regions. In the USA the market concentration fluctuates stronger as in Europe.

On the paper of V. Salas et al., Tomas Philippon pointed out that it is important to focus more on the analysis of average unit production cost. In addition, comparison of “corporate sectors” in Europe should be done with special care. For example, self-employed workers are included in Germany and Italy, but not in France. Furthermore, housing assets can still appear. Consequently, industry accounts should be used and as a result the increase in corporate profits in Germany would be much lower than in the USA. Additionally, the analysis related to Germany should be treated with caution as in 1990’s Germany was not in the steady state due to the reunification turmoil. Finally, more investigation has to be done with respect to the conclusions regarding the drivers of the different dynamics.

On the paper of Diez et al., he pointed out that the term “superstar firms” is not clearly defined and the term is very suggestive. In particular, the question about the common defining factor that those firms share. Concentration measures have to be treated with care, as they simply are profits. Measures that increase with concentration will not be a good measure of competition.

Discussion by G. Eggertson (Brown university)

Gauti Eggertson discussion of the papers presented in this session focused mainly on a macroeconomic perspective. After briefly presenting the main findings of the two papers, he argued that one of them – the rise in mark-ups – might be one of the explanations of some trends in the economy.

He therefore presented some results of his recent paper focused on the US (Eggertson et al., 2018). In a context of low interest rates, the authors find 5 reasonable results. First, in the US the gap between the wealth-to-output ratio and the capital-to-output ratio has widened significantly – although both ratios should be equal according to the neoclassical theory. Second, there is evidence of a high Tobin’s Q (market value of installed capital to replacement costs of capital). Third, there has been a decrease in real interest rates while measured return on capital is constant. Fourth, there is evidence of a persistent decline in both labor and capital shares (and the labor share still being three to four times higher than the capital share). Strikingly, despite the previous results the investment-to-output ratio has decreased both in the US and the EU. The authors explain these facts in the US as a result of the rise in mark-ups, given the fall in interest rate.

However, the papers presented in this second session present evidence that the rising trend in mark-ups in the US is not present in the EU. Therefore, it is difficult to explain the fall in investment in the EU as a result of rising mark-ups. G. Eggertson therefore suggested that further micro evidence on these facts is needed.

During the following Q&A session the subject of superstar firms and their underlying understanding was raised once again, following the discussion of the second paper. Tomas Philippon stressed how a similar kind firms already made their appearance during the 80s and 90s and therefore do not pose a new development and do not belong to a special type of firms. It

would therefore be advisable to sort industries based on ex-ante measures. In addition, it was pointed out that the correlations between different measures may be an issue, therefore further measurement needs to be done before defining the clear drivers.

Furthermore, it was argued that if one considers the TFP distribution (which is correlated with the markup distribution) rather than the markup, more can be said about the superstar firms (a certain type of firms will be clearly highlighted). Following on this comment, Tomas Philippon argued that many “famous” firms can have rather low sales. In this instance, it can still be unclear how to classify such firms.

Session 3: One-Country Evidence

M. Gradzewicz, J. Muck*: “Globalization and the Fall of Markups”

Motivation

Rising mark-ups in the US are well documented in the literature and this increase is clearly attributed to superstar firms. Outside the US there is not so clear tendency. Mark-ups are rising in advanced economies but are stable or declining in emerging markets. The paper tries to explain this dynamic with reference to globalization, and in particular to the participation in global value chains.

The formation of global value chains, ICT revolution and the removal of trading barrier led to the vertical international specialization and fragmentation of production processes. Gains from participating in GVC can be asymmetric, in particular the gains of firms or tasks located at the extremes (at the beginning, like R&D, or at the end of the chain, like sales) are higher, while those in the middle (the more labour-intensive tasks) gain less, generating a smile curve.

The paper shows a decline in mark-ups in Poland and relates this decline to increasing participation in GVC. At first, the participation was associated with large productivity gains as participating firms moved closer to the technological frontier, but then Polish firm lost market power and reduced their mark-ups following increasing specialisation in more labour-intensive tasks. The absence of superstar firms in Poland further contributes to the observed mark-up decline. The paper also documents the existence in Poland of the so-called smile curve, which describes the relationship between distance to final demand/GVC participation and mark-ups.

Data and methodology

Census database on Polish firm 2002-2016. The full population for firm with more than 9 employees; dataset covers around 75% of the population. Variables like VA and employment were checked against macroeconomic figures. The analysis refers to De Loecker and Warzynski (2012), and most recent advanced techniques in production function estimation. Data show a declining trend for mark-ups for 70% of the firms, averaging 20%. The authors apply many robustness checks: estimating production functions at different aggregation levels (2 or 3 digits NACE Rev.2 codes), using materials instead of intermediate consumption as a variable input, using a Cobb-Douglas instead of the translog specification. Different combinations show slightly different levels but the decline is clear with all the estimation methods. Using two different decomposition, the Olley and Pakes (at the sectoral level) and the

Melitz and Polanec, the authors find that the within component dominates and there is no role for reallocation processes.

Then the paper analyses the role of globalisation using a dynamic decomposition of mark-ups. The analysis stresses role of entrant firms to explain the rise of mark-ups at the beginning of the sample. The proposed explanation is based on export premiums and firm efficiency: at the beginning, the export premium was large, but it gradually vanished due to increasing competition that reduced mark-ups over time.

The authors find nonlinear relationships between mark-ups and various measures of globalization: for “upstreamness” mark-ups are higher for firms that are very far or very close to final demand. For foreign value added in export (FVAX) mark-ups decline above a certain threshold in the import content of exports, especially for manufacturing firms. The between, firm-level regression shows that there are two forces pushing down mark-ups for exporting firms and they are increasing competition, as measured by the inverse concentration at exports, and the degree of FVAX.

Conclusion

The secular decline in mark-ups in Poland can be explained by rising competition of exporting firms participating in GVC and by the limited role of superstar firms.

J. De Loecker, C. Fuss, J. Van Biesebroeck*: “Markup and Price Dynamics: Linking Micro to Macro”

Motivation

The rise in mark-ups, well documented for the US using Compustat data, is clearly visible for Belgium in Worldscope (using listed firms), too, even though it was almost flat up to 2000. Clearly, large listed firms are very few (between 80 and 100 per year) and do not provide a comprehensive picture of the Belgian economy. Hence, the paper, uses the universe of data on a quite long panel (1978-2016) for Belgium, a small and open economy.

The first challenge with the dataset is technology. Mark-ups are calculated using the De Loecker and Warzynski (2012) methodology, but the authors have to acknowledge that output elasticity may not be constant over a period of 40 years and therefore it has to be estimated. Estimating a PF when there is market power is complicated and there are no detailed results yet.

The question of the “reference market” is an important one. Large Belgian firms cannot operate only in Belgium, a small economy. They operate in the whole EU single market, at least, or even globally. Hence, it is important to account properly for these firms. Compustat or Worldscope produce consolidated accounts, which provide the relevant information, but for the universe of Belgian firms, consolidated accounts are not available.

Methodology

The VAT database provides great details on intermediate purchases giving a lot of possibilities in the definition of the variable input. This is particularly valuable as in Belgium labour is not that variable. Intermediate purchases can be divided into two groups. Goods intermediates that are truly variable and service intermediates that are quasi-fixed. According to the accounting instructions in Belgium, there are eight categories of service intermediates, some of which are variable, but the majority are fixed. For example, temporary and external work are variable but

the pension of the CEO is fixed. Moreover, they move very differently over time. The richness of the dataset allows estimation of production functions year by year, addressing the output-elasticity problem. Preliminary evidence on goods intermediates shows that technology has not changed a lot. This conclusion changes if service intermediates are used, instead.

The evidence is that mark-ups calculated with goods inputs are more reliable. In fact, they are quite stable while those calculated with all the inputs are declining. The decline reflects the effect of the increase in the use of service inputs. The 95th percentile of the mark-up's distribution, calculated using goods inputs, is clearly increasing. The paper also documents the evolution of mark-ups for manufacturing, trade, agriculture and utilities: evidence is that there is an upward trend in mark-ups, that is more pronounced in the beginning of the sample but less so than in the US. Agriculture and utilities are very volatile.

Second part on decomposition

Olley-Pakes decomposition or Melitz-Polanec extension are inherently cross-sectional decompositions into an average and a covariance between shares and mark-ups. The authors build on these two decompositions, proposing two new measures: Actual (due to Griliches and Regev 1995) and Counterfactual (Haltiwanger 1997). These decompositions were originally proposed for productivity but they can be applied to mark-ups, as well.

The Actual decomposition uses average weights over two consecutive periods, in the spirit of the original Solow decomposition in continuous time. The Counterfactual decomposition uses lagged weights for changes so the first term is the change in performance (productivity or mark-ups) weighted by the past market share, while the second term is the change in market share weighted by the initial performance. Using the lagged weights, one inevitably introduces a third term that is a covariance but very different from the Olley and Pakes one. It is the correlation between the change in the share and the change in the mark-up. The other two terms - entry and exit - are the same. These decompositions were done both at the sectoral, and more interestingly, at firm level within each sector. Comparison of the Actual and the Counterfactual decomposition shows that the cross-term of the Counterfactual is allocated half to the within and to the between, which declines in the Actual while it is almost flat in the counterfactual. Given that the counterfactual is what would have been observed if firms would have been able to keep their share unchanged, it is clear that increasing mark-ups mean declining market share. This result applies to both manufacturing and trade. Entry reduces mark-ups.

Conclusions

Mark-ups growth is due to within firm growth. The aggregate mark-up would have increased much more, if not for the strong negative correlation between firm-level changes in weight and mark-up. In Belgium firms that increase their mark-up reduce their size. This maybe different in the US: the correlation term could be less important in the US, i.e. in the US could be easier to increase the mark-up because of learning processes or a bigger absolute size.

M. Morlacco: “Market Power in Input Markets: Theory and Evidence from French Manufacturing”

Motivation

A lot of analysis is done on the seller market power, much less so on buyer input market power. However large buyers can be dominant players and engage in anti-competitive practices with macro-aggregated consequences. This paper focuses on market power in imported input markets. Large buyers are major players in international markets, and international markets are characterized by large barriers to entry. The paper is divided into two parts, an empirical analysis of the role of market imperfections in imported input markets, developing a methodology to estimate market imperfections. The methodology is applied to longitudinal data on French manufacturing import in the period 1996-2007. The results providing some evidence that market imperfections in foreign input markets are large and consistent with market power by buyers.

In the second part, the author investigates the macroeconomic implications of the findings of the first part, including market imperfections in input market, in an otherwise standard heterogeneous firm model of production. The author quantifying the role of these using the wedges found in the first part with the help of this model.

Methodology

Allowing for input market power implies introducing a potential input efficiency wedge that can be estimated. In fact, in this situation the FOC does not identify the mark-up anymore but there is an extra wedge and this can be written as $1 +$ the elasticity of price of the input with respect to the quantity purchased. This is a measure of imperfect competition. In the case of perfect competition, the wedge will be 1. If the value is greater than 1 there is imperfect competition of the supposed type (oligopsony or monopsony power). Hence the paper is based on the empirical analysis of firms that buy at least one static input domestically at a price that is given and at least one static input imported at a price that depend on the bought quantity.

PF estimation is usually based on nominal values of both output and inputs, not on quantity and prices. But having measures of prices (of input and output) could allow addressing all the potential biases. In the paper input and output prices at firm level are built using unit values for import and export at firm/product/country level and this allows the estimation.

Data from balance sheet plus value and quantity of imports/exports at firm/CN8/country level from 1996 to 2007 for manufacturing firms. The data covers 8% of all firms but accounting for 60% of total manufacturing value added.

The empirical estimation of the wedge gives values that are significantly larger than 1 for both the median and the mean, with a lot of sectorial heterogeneity. According to the estimates, the average manufacturing importer has a buyer mark-up of 165% meaning that its paying 165% less than would have been the case if he had not market power. The distribution is highly skewed towards a small number of large buyers, as the median buyer mark-up is only 56%.

Across the sectors, these mark-ups are positively correlated to the average market share of firms within the industry, to the size and to the percentage of inputs imported from EM. All these variables are related potentially to the idea of oligopsony power. Regressing wedges at firm level one finds that, conditional on technology, larger and more productive firms are increasingly more distorted, that is they spend lower than optimal amount on foreign intermediaries. The author uses a model, drawing from the resource misallocation literature

(Hsieh and Kienow) to assess the aggregate implications of the observed distortions. The paper compares TFP and output in aggregate terms in the model and in a counterfactual situation, without buyer power. The aggregate TFP is negatively correlated with the dispersion of buyer power. This is a misallocation story, because resource allocation is driven by buyer power and not by TFP. In terms of output, both the mean and variance of buyer market power matters. The level of buyer power is negative but the variance is positive for output.

Conclusion

Input market imperfections seem to be large and deserve more attention. They could be a source of misallocation that has been neglected so far.

Discussion by Chad Syverson (University of Chicago)

Paper on Belgium: there is an intriguing pattern in aggregate mark-ups: those estimated on the universe in fact seem to mirror those coming from Worldscope (listed firms) in fact the former rise until 1995 then level, the latter level until 2000 and then rise. The authors explore variations within and across sectors. The paper confirms that heterogeneity is everywhere, including mark-ups, and that the right tail of the distribution is running away. The distributions affirm size, earnings, productivity and mark-ups become more skewed. It is tempting to look for a single cause of all these things happening. The ability to distinguish between services and goods input is the main novelty and it is intriguing. It provides two ways of measuring the same thing using two variable inputs, but one has to keep in mind that a lot are quasi-fixed. The general problem here is that whether a resource is fixed or not depends on the time period one has in mind. It would be interesting to vary time period length and verify whether longer periods help distinguishing. The decomposition results are very interesting, as they suggest that high mark-up firms are “reallocated away” over time. That is controversial because a lot of analysis suggest that high mark-up firms grow bigger

In general, it should be taken into account that when output and inputs are measured as $P \times Q$ and not only Q , the estimates usually involve both PF and demand parameters.

Paper on France and monopsony of importers: the issue of monopsony is a hot topic, with a lot of research, particularly in labour markets. The paper derives an expression of the estimate of mark-up (output elasticity divided by expenditure share) and generalizes it, adding the factor market wedge. There are reasons why there is a real symmetry between the deadweight loss from product market power and that from factor market power. There is the same measurement issue regarding the variable/fixed input. The paper finds a large monopsony power. There is a bit of discussion in the paper on why a firm can have monopsony power with foreign input and not domestically. But the way to think about the monopsony power (its determinants) is the inability or unwillingness of the factor to reallocate itself. The effort to aggregate the micro results is interesting.

Discussion by Ufuk Akcigit (University of Chicago)

We are talking about some interesting facts and primitives. We are seeing some new facts, but most of these are trending since the 80ies but we started discussing them very recently. It is a very interesting literature proceeding at a very fast pace. Already, a single combination of one fact with one primitive is interesting, but it becomes paramount interesting when one combines more facts and tries to relate them to primitives. The really interesting thing is to identifying the underlying story. Of course, each country could have its own story and it is difficult to uncover a global mechanism. Let's explore using a broader standpoint, asking what we have learned. Let's look at the US now. Facts in the US:

1. Market concentration has risen.
2. Average mark-ups have been rising.
3. Average profits have increased. The fraction of GDP that is paid as profit has been rising from 5% to 14%.
4. The labour share of output has gone down.
5. Market concentration and labour share are negatively associated (from Autor paper, going to the underlying mechanism).
6. Labour productivity gap between "the best" and "the rest" has widened.
7. Firm entry rate has declined, both in terms of establishment or firm creation.
8. The share of young firms in economic activity has declined.
9. Job reallocation has slowed down.
10. The dispersion of firm growth has decreased. This is less debated and known but it is important because it signals that the ongoing "experimentations" in the economy is declining.

The big question is what has changed in the background? Many things are trending: Effective corporate tax rates have declined, R&D subsidies rose strongly, benefitting disproportionately large incumbents, worker power has been declining, interest rates are trending down. Can we find a unifying framework for these phenomena? It is always possible to find correlations between one primitive and one observed, but we need some discipline to tackle all of these issues: A framework that allows for endogeneity in the mark-up. There is some confusion in the literature in saying "the mark-up is going up" and considering it as a primitive. The relevant question is "why mark-ups are going up?". It is not a primitive, it may be the consequence of something.

That challenge is tackled in a paper by Akcigit and Ates, with endogenous mark-ups and endogenous market structure. The key thing is the strategic interaction between competing firms. Multiple firms in an industry that are strategically competing and the key ingredient in the paper is relative position, if the firms are neck in neck in terms of productivity, they will try hard, if one dominates (has market power) the other is discouraged, and it does not challenge the dominant firm. That in turn does not feel any threat to its position and will behave accordingly (reducing efforts). Transitional dynamics has to be considered and investigated. Incumbents are trying to innovate to increase their mark-up while the followers are trying to invest in R&D because they hope one day to dominate the market. Of course, there is a lot of debate on why entry rates have declined and some link this to the demographic evolution in the US. Nevertheless, the interpretation of the hope and possibility is nice: if I am a brilliant student, I may decide to found my own startup. If, on the contrary, I don't have hope for it to be

successful, I rather ask the incumbent a nice managerial position. This forward-looking attitude is the key. In the paper as many primitive as possible are considered and in particular:

1. Lower Effective Corporate Tax Rate.
2. Higher R&D Subsidies.
3. Higher Entry Costs.
4. Lower Knowledge Diffusion.
5. Declining Interest Rate.
6. Ideas Getting Harder.
7. Lower Worker Power.

The authors run a horse race between all of these reasons. Prior to 1980, US was in a sort of steady state then they entered in a transition phase. Let's introduce these shocks to the model and compare their impact on the facts described at the beginning.

Feeding in the effect of the corporate tax and looking at the generated impact in the model. This is done for all the primitives and they all fail in some dimensions. Eventually, lower knowledge diffusion is the single primitive that is in some way both quantitatively and qualitatively appears to speak to the data. The extent to which the follower learns from the leader: if there are less spill-overs from leaders to followers that is coherent with all these facts together. The basic premise of the growth theory is that we have to tolerate some market distortions and some market power, because this will allow faster growth in return. Clearly there is an inverted U form in knowledge diffusion and welfare.

What does a lower knowledge diffusion mean? Why did it happen?

For example, because in the past knowledge was embedded in machinery, copying the machine (or even the product itself) was a way of diffusing knowledge. Now incumbents use data to sell their product and this is not easily replicable. Production was localized in the US and there was learning and spillover, now production takes place everywhere, from China to Mexico and there are less interactions and less occasions to learn. IP protection could have assumed profiles that were not wanted. Patenting share by new entrants declined and patenting concentration has increased. Patents are bought by the largest firms. Considering that while for the general economy the trend started in 1980 for Hi-tech the change started in 2000.

Some smoking guns can be found by looking for a change in the way IPR and patents are used. Since 2000, the fractions of self-citations (likely used for enhancing the defences around the core patent) strongly increased, the average claim length also increased strongly after 2000 (if you are patenting something really new it should be relatively straightforward, i.e. short to say it, while if you are adding an incremental innovation the claim will be much longer).

Comments on the papers: adding facts to be matched and dynamics is key, both to the paper on Polish firms and also to the one investigating monopsony power.

Session 4: Macro and Methodological Issues

Cian Ruane* (IMF), Mark Bilal (Rochester) and Pete Klenow (Stanford):
“Misallocation or Mismeasurement?”

Motivation

There is huge dispersion in revenue productivity across firms within narrowly defined industries. Following Hsieh & Klenow (2009), a large literature has used revenue productivity dispersion as a sufficient statistic for resource misallocation which lowers aggregate productivity. The authors argue that this approach may overstate true misallocation because of measurement error in survey data. In addition, revenue productivity dispersion in U.S. manufacturing has been dramatically rising since 1978. It is important to understand whether this reflects worsening misallocation or worsening measurement.

Methodology and data

The authors propose a new methodology to correct measures of misallocation for additive measurement error in survey data. The approach is implementable using firm-level panel data. The idea is to look at how the elasticity of revenue growth with respect to input growth varies with revenue productivity. The reason is that the elasticity of revenue growth with respect to input growth is the ratio of the firm’s marginal revenue product to the firm’s average revenue product. If there is a decreasing relationship between this elasticity and the average revenue product (revenue productivity), then this suggests the presence of additive measurement error, and the slope of the relationship can be used to quantify the extent of measurement error.

Findings

The authors implement their methodology using a representative survey of Indian manufacturing plants from 1985-2013, and U.S. Census data for the manufacturing sector from 1978-2007. They find that correcting for measurement error lowers misallocation in both India and the U.S. They find that measurement error is worse in the U.S. than in India, and accounts for a significant share of rising revenue productivity dispersion in the U.S.

Chiara Criscuolo* (OECD), Giuseppe Berlingieri (OECD), Sara Calligaris (OECD) and Jonathan Timmis (OECD): “Industry Concentration in Europe and North America”

Motivation

A recent body of work has documented rising industry concentration in the U.S., however relatively little evidence exists for Europe. These calculations have been particularly difficult in Europe because of the lack of harmonized firm-level datasets and because of the difficulty of assigning business group sales to different countries.

Methodology

The authors use two new datasets to analyse industry concentration for 10 European countries between 2001 and 2012: the OECD's Multiprod firm-level database, and a merged Orbis-Worldscope-Zephyr business group-level database. One of the big challenges that the authors overcome is apportioning business group sales to industries and countries. Using the Multiprod database, the authors measure concentration as the share of sales accounted for by the 10% largest firms. Using the Orbis-Worldscope-Zephyr business group database the authors construct the share of industry sales accounted for by the largest 4/8/20 business groups. In their concentration measures the authors use STAN industry-level data, rather than firm-level data, to construct industry-level sales.

Findings

The authors find that industry concentration rose in Europe between 2001 and 2012. The rise ranges between 2-3 p.p. when using the share of sales accounted for by the top 10% of firms (Multiprod data), and it ranges between 4-8 p.p when using the share of sales accounted for by the top 8 business groups (Orbis-Worldscope-Zephyr data). The rise in concentration is evident in both digital intensive and less digital intensive sectors. Importantly, if firm-level data from Multiprod or Orbis was used to construct industry sales (the denominator in the industry concentration measures) the researchers would incorrectly find that concentration declined. This would simply be an artefact of expanding survey coverage however.

Discussion by Eric Bartelsman (Tinbergen Institute)

The discussant recommended that the authors of 'Misallocation or Mismeasurement?' provide direct evidence of measurement error in U.S. surveys, for example by comparing end-of-year and beginning-of-year stocks for consecutive years. He also pushed the authors to think further about what statistical processes might be getting worse over time in the U.S. Finally, he pointed out that revenue productivity dispersion is only a sufficient statistic for misallocation – even without measurement error – under a narrow set of conditions.

The discussant highlighted the large amount of work that went into preparing and merging Orbis with other datasets for the paper "Industry Concentration in Europe and North America", and the importance of carefully apportioning business group sales to industries and countries. He highlighted however that NACE industries may not be the relevant markets for many of these firms, and that rising industry concentration doesn't necessarily reflect rising market concentration. He encouraged the authors to bring in trade data to the next version of Multiprod.

The discussant emphasized that the micro and statistical measurement issues brought up in both papers were very important for macroeconomic questions. Traditional empirical macro, relying on macro timeseries and representative agent models, has relatively little to say about questions regarding slow productivity growth, rising mark-ups and declining labour shares. Looking at cross-country evidence on firm-level dynamics is a promising avenue for future research, but more careful data work and modelling is needed.

Discussion by Dan Andrews (Australian Treasury).

The discussant highlighted the current debate regarding how to appropriately measure misallocation and reallocation. He also pushed the authors of “Misallocation or Mismeasurement?” to think about alternative mechanisms that could act like rising additive measurement error in the U.S., for example rising assortative matching between workers and firms.

For “Industry Concentration in Europe and North America”, the discussant highlighted the importance of using the right denominator in industry concentration measures. He also suggested that industry concentration should be viewed in tandem with mark-ups, profits and M&A activity to get an overview of the competitive environment. Finally, he pointed out that rising industry concentration at the aggregate level could be consistent with falling industry concentration at the local level, as suggested by recent evidence in the U.S.

The discussant highlighted some of the possible implications of rising industry concentration, which has coincided with rising mark-ups and declining business and labour market dynamism. This could be a symptom of declining competition and policy failures, but even if it is only due to technological changes it may still be a concern for policy in the future. He highlighted that cross-country data could be useful in making progress on these issues, and that firm entry and job reallocation rates should also be examined. He showed evidence that, in Australia, rising industry concentration is only modestly negatively correlated with firm entry rates.

Session 5: Product and Labor Market Power

The fifth session of the conference covered the topic of product and labor market power. It was chaired by J. De Loecker (KU Leuven) and J. Svejnar (Columbia University). M. Mertens (IWH and CompNet) and C. Maggi (Northwestern University) presented their papers.

M. Mertens: “Micro-Mechanisms Behind Declining Labor Shares: Market Power, Production Processes and Global Competition”

Motivation

M. Mertens started presenting descriptive evidence of falling labor shares in many countries in recent decades and argued this has important distributional consequences and contradicts Kaldor’s theory of constant labor shares over time. The literature has explained this phenomenon as an effect of global integration, increasing importance of capital attributed to ICT, decline of labor institutions and rising market power due to the increase in mark-ups.

Methodology and data

The author develops a mathematical link between labor shares to firms’ product & labor market power and labor’s output elasticity to analyze their changes over time. In particular, he combines the approaches of Dobbelaere and Mairesse (2013), Dobbelaere and Kiyota (2018), and De Loecker, Eeckhout & Unger (2018). To this end, German micro-data for the

manufacturing sector (for firms with more than 20 employees over the period 1995-2014) are used to explore the extent to which market power in different markets can explain the fall in labor share in Germany.

Conclusion

The author effectively finds that market power in the product and labor market can explain only about 30% of the change in the labor share in German manufacturing between 1995 and 2014. In more detail, most of this change in the labor share is explained by labor market power instead of product market power which highlights the importance of differentiating the market power of firms in terms of product and labor market.

The remaining 70% are driven by a so far undocumented decline in the output elasticity of labor, which reflects a transition of firms towards less labor-intensive production processes. According to the author, export demand shocks might explain this by increasing labor market power within firms and by inducing a reallocation of economic activity from non-exporting-high-labor-share to exporting-low-labor-share firms.

C. Maggi* and S. Felix: “What is the Impact of Increased Business Competition?”

Motivation

In this paper, the authors study the impact of increased business competition on firm entry and exit behavior as well as on aggregate employment as a result of a specific type of structural reforms: those aiming at a reduction in entry costs. There is a general lack of evidence on the impact of this type of reforms due to several identification challenges, particularly the fact that the decisions to implement them as well as the behavior of firms are endogenous to current economic conditions.

Methodology and data

The authors therefore provide novel causal evidence by exploiting the natural experiment given by an entry reform implemented in Portugal in 2005. They then develop a theoretical framework consistent with their empirical evidence. The crucial assumption of their theoretical model is that firms are heterogeneous in terms of elasticities (there is not a CES framework).

They first show that the reform effectively increased entry of firms (by 25% per year) and then notice that proper identification of the impact of the reform had a staggered implementation due to a lack of resources. In this context, the authors use a DiD approach to study the impact of the reform on aggregate employment. In particular, the municipalities where the reform was not implemented are the control group of the DiD and provide the counterfactual.

Findings

Their empirical findings imply that the reform had increased aggregate employment by 4% per year. This increase in employment was due to both entry of new firms (approximately 43%) and expansion of incumbents (approximately 57%). However, the latter effect is not homogeneous across firms. It mostly derives from most productive incumbents getting larger in terms of employment. In this context, the authors finally find that the most productive incumbents decreased their exit rate after the implementation of the reform.

The authors importantly notice that the Portuguese reform triggered two effects on incumbent firms. First, a competition effect that made all of them worse off in a heterogeneous manner: the most productive were hit proportionally less than the least productive. Second, an aggregate demand effect that was homogeneously beneficial.

To rationalize their empirical findings, the authors developed a theoretical model. It involves a general static framework with heterogeneous firms and monopolistic competition. Crucially, they relax the assumption of CES demand and assume a translog demand. The rationale for this decision is that in a CES framework all the incumbent firms will be equally hurt by the increasing competition due to the new reform. On the contrary, in a translog setting (with heterogeneous elasticities across firms) the impact of the reform will be heterogeneous as well, with more productive incumbents hit proportionally less than those less productive by the increased competition generated by the reform. This properly reconciles with the empirical findings of the paper.

Discussion by J. Svejnar (Columbia University)

Jan Svejnar discussed the paper of Maggi and Felix. He provided an overall positive assessment of the paper when presenting the main ideas and findings.

He then made the important point that when assessing the impact of a similar reform, there are strong identification challenges since it is difficult to disentangle the effects of a structural reform from macroeconomic conditions and other confounders. However, he appreciated the effort to design a proper theoretical framework based on the empirical findings.

He then highlighted some identification challenges. First, he expressed his concern that municipalities where the reform was implemented might not have been chosen at random. Second and related, it might be possible that the parallel trend assumption does not hold. He suggested that this potential selection issue might be solved through the use of instrument variables for the selection of municipalities, propensity score matching and/or placebo tests.

Two last points that were made are that authors have firm-level information at 5-digit level but it is not used in the work. This is to avoid selection bias, but might be interesting to use it. Finally, he suggested that authors could also use TFP as an alternative measure of productivity.

Discussion by J. de Loecker (KU Leuven)

In his discussion of the Mertens paper, Jan de Loecker started with the evidence that labor shares can be calculated at different levels. In perfect competition, the labor share is constant and any changes are driven by technological changes. In imperfect competition, a wedge between technological change and labor share developments is introduced due to the presence of mark-ups.

He then made the point that due to Jensen's inequality one has to be careful when aggregating micro-level variables. For instance, in case of the revenue (value-added) labor share one has to use firm-level revenue (value-added) weights when aggregating firm-level labor shares.

As it regards the paper by Matthias Mertens, he made two points. The first, related to the sample, is that it may be a problem to work on a sample of firms with more than 20 employees in Germany and to include only those in the manufacturing sector. The second point, related to the analytical framework, is the concern that the baseline regressions link labor to labor while technological change is not accounted for.

The following discussion addressed the identification challenges in the Maggie and Felix paper and focused on the nature of the semi-natural experiment and how control groups could have served as an additional robustness check. In terms of the Mertens paper, the discussion focused mostly on the special characteristics of the German economy and how representative the manufacturing sector is in the analyzed time period.

Policy Panel

Mary Veronica Tovsak-Pleterski (European Commission)

Policy implications for EC of the issue of market power: the first remark is about European competition policy, and the complementary competition enhancing policies and market integration. EU aims at maintain high competition levels inside the EU market in order to ensure both fair prices and incentives to innovate. Lack of competition means higher prices, lower quality, more limited choices. Via the Quest model, EC research estimated that competition policy has a 0.4% positive impact on GDP growth (after 5 years) and that such impact becomes 0.8% in the long run. It also has a big effect in terms of employment (+0.3%), and it creates 650k additional jobs. It hence increases welfare, consumption, wages. That's well known, but also complementary competition enhancing policies are important. Even though it is not easy and straightforward, EC does a lot in terms of market integration, for example regarding energy market. Here, the EC in the last four years approved a notable legislative package that will help to further liberalize the energy market, to integrate the energy and gas market and also to introduce a digital single market which will have consequences in the near future... In addition to this, the work on CMU is critically important for further investments promotion, allowing firms, SMEs, entrepreneurs to enhance their access to financial resources. Thinking about improving the functioning of labour and product market, single market agenda obviously comes to mind, but also the increasing coordination with Member States should be mentioned: this is the economic governance process in which policy recommendations are issued and discussed with MSs. A lot has been down at the time of crisis even though there can be now a loss of momentum in producing further adjustments. Challenges are still there, hence. From an EC perspective the main one is making Europe a better environment for investments and investors, hence, understanding and getting away barrier hindering investments. For example, the procedures and costs firms have to cope with for starting or operating a business, framework conditions, but also insolvency framework, e-procurement...this should be tackled at the EU level, but then a lot of these regulations are to be legislated at the national level. Regulatory framework is even more important regarding intangible investment than for tangible.

Sergej Guriev (EBRD)

It can be useful to refer to a specific policy experiment in a country that is far from Europe, Korea. EBRD is collaborating with Korea because they want to know about the experience of policy in Eastern Europe, thinking about the fact that their northern neighbour could move towards market economy at some point. EBRD is interested because they manage to transform their country from a successful industrial one, based on investments done by big conglomerates, into a post-industrial knowledge-based country. EBRD did an analysis looking at micro level data (all industrial firms from 1992 to 2003) trying to understand what happened to firms in an environment initially dominated by the Chaebols. In 1998 the Chaebol system went basically bust and the government, with the assistance of the IMF, introduced a significant deal of competition policy, with the economy suddenly starting to be more open to non-Chaebol firms as well. The analysis tries to look at what happened in different industries dominated or not by the Chaebols (hence doing a Diff-in-Diff analysis). Results are that after the reforms there was a clear increase in the entry and exit rate, particularly due to non-Chaebol firms, despite also some Chaebols exiting from business (DAEWOO). Looking at productivity growth, in industries that formerly were dominated by Chaebols there was faster productivity growth due to non-Chaebol firms and it was both labour productivity and TFP. Regarding patenting, a positive trend is detectable in all industries, but it is also clear that the acceleration was due to non-Chaebol firms and it was particularly strong in industries that were previously dominated by Chaebols. Mark-ups increased everywhere, but this is not a strange result, because Korean economy entered sectors in which there are increasing returns and economies of scale, all the ingredients for having higher mark-ups (again with non-Chaebol industries showing faster growth). The crisis helped the government breaking former Chaebols agreements and opened up the economy to other firms. A very specific example that documents an experiment that did work.

Filippo Di Mauro (Compnet)

Excessive market power is bad, bringing lower output and higher prices and creating rent-seeking attitude. The paradox is: why are we looking to this issue? This should be an issue for regulatory authorities actually. Here are three motivations and areas of interest:

- 1) **Measurement.** There is a clear issue here about a correct measure of market power. Also, concentration is not necessarily a good measure. A lot of work is needed. Compnet suggests using a bunch of indicators, whereas findings show that there is not that big spike in mark-ups in Europe, at least not as strongly as in the US. One important thing is that mark-up is associated with size and productivity of the firm. Another result is that the extent of the pass-through of productivity to wages is lower for large, productive firms. They use their market power to contain such pass through.
- 2) **Research directions?** Distinguish product market from input market power, there is also an input market power, what is more important? The policy responses are different. Is there any debate on that in Europe?
- 3) **What is CompNet going to do?** Compnet will use its main strength, which is a dataset allowing cross country comparability. Therefore, Compnet wants to validate the results of trends in market power cross-country, by also adding other measures and proxies of labour share, capital share and providing aggregated indicators of market power for countries and Europe; possibly using the heterogeneity evident in micro-foundation, as averages in this kind of story count very little. Why we have this evolution in market power still has to be fully clarified.

Romain Duval (IMF)

Drivers and macro implications of rising market power have to be identified before moving to policy implications.

Rising market power should be a matter of concern if the rise in mark-up comes from the within component. If otherwise, the rise in aggregated mark-up comes from the between component, that stands for a reallocation away from low productivity, little innovating firms. Likewise, in terms of macro implications, it is not a big concern (at least in terms of urgency), if the related macro implications are relatively contained.

On the drivers, there are four facts that point more at a technology story rather than a policy driven weakening of competition story.

The four facts are:

- 1) The increase in mark-up is broad based in terms of countries and industries, and in each industry, it is concentrated in a small fraction of firms. This per se points at a more general story than policy weakening.
- 2) The small fraction of firms causing the rise in aggregate mark-up is more productive and innovative.
- 3) The direct evidence of weakening of pro-competitive policy remains limited. On the contrary, --we have just gone through two-three decades of deregulation, all being strongly pro-competitive.
- 4) The main source of contention is: whether the US is different from EU and other countries. At least until now, the increase in the US comes from a between component and not a within component. Therefore, even in the US one can argue that it is more a technology story than a competition one.

This does not preclude that competition policy didn't play a role, because of the winner-takes-all dynamics; a combination of technology story with a competition policy failure could be at the heart of the matter, as they are not mutually exclusive and they can be well intertwined. Hence, more research is needed here. Moving to the macro implications, they have been rather moderate but if the increase in mark-up is left unchecked, they can become more and more negative. It is difficult to judge: a counterfactual exercise without market power shows a small impact on investment; on innovation on the contrary it is reasonable that if there is an inverted U relationship between mark-up and innovation, probably there was a positive move towards the mode, even though this can be a concern for the future. In terms of labour income, there is a clear relationship between rising mark-ups and declining labour shares but again, it is not very large.

Moving to policy implications, there are three main issues. The first is that if there is the need of keeping market contestable, there is still work to be done in cutting regulatory barriers to entry. The second area is competition policy. Here, the role of market examinations and ability and willingness of the authority of intervening are an issue, especially considering the growing frequency of this phenomenon of large firms buying a small one that can become a potential competitor even well before it becomes a competitor (Facebook- WhatsApp).

The third matter is that the growing heterogeneity suggests the need to rethink diffusion and IPR policies, by possibly rewarding major breakthrough much more than incremental innovations and also by carefully analysing the issue of patent pools that can facilitate diffusion or hinder it.

Debora Revoltella (EIB)

Why should we care about market power at the EIB? We, as an institution, care about EU competitiveness, both on the operational side and in terms of research. Our aim is to suggest and implement ways of enhancing EU competitiveness, and we broadly equate EU competitiveness with high firms' productivity and high share of highly productive firms in the economy, possibly reallocating resources from the less productive to the more productive one. As an institution, we do that providing finance. Addressing the market failure, we see in EU at the moment does not only involve finance and the financial market though. If this is our objective, where does the issue of market power come in? We are not concerned if a productive firm is profitable and grows in size, becoming a market leader benefitting from economies of scale and scope, for, especially with the current digital transformation, this can be beneficial for consumers exactly for this reason. However, we should care if the market does not tend to allow the laggards to catch up the leaders tending to level off the initial mark-up differences. This can happen for two reasons: if the incumbents abuse of their market power or if the environment prevents any reallocation of resources, and that could happen for a number of barriers or frictions in the market. We developed a survey on European firms 4 years ago, interviewing 12.5k firms per year in the 28 countries and the sample design is representative at country, sector, size level. Answers are matched with the corresponding ORBIS balance sheet data. We started last year by adding a number of US firms as a benchmark. Last year we also added a digital focus. We tried to link the topics of digitalization and that of market power and here is a summary of our findings. First of all, we see a lag in the EU vs US, particularly in the service sector, in the adoption of digital technologies. Then, we found that digital firms show higher mark-up, but they are also more productive and invest more, innovate more than the non digital ones. However, we also found some evidence of persistence of misallocation of resources and persistence of mark-ups, and some evidence of the winner-takes-all effects at play. Misallocation plays a big role: reducing it in EU to the US level would increase EU GDP by some 20%. On mark-up persistence, a bit more of 50% of high mark-up-firms today were already high mark-up-firms in 2008. From survey responses, we found that if we rank firms in terms of digitalization adoption and in terms of productivity, those placed at the higher quantiles do not feel competitive pressures, they don't fear the entry of new competitors. Hence, there are reasons to be partially concerned about: the continuous misallocation of resources and the persistency of mark-up and winner-takes-all dynamics. Moving to policy, European weakness is not due to firms' leaders and competition policy not being able to prevent them from abusing from their position: it is the other end of the spectrum that is not efficient enough. It is the allocation of resources to potential new leaders, and more efficient ones, that is lacking in EU.

The last point is on policy debate in Europe. There is a lot of international effort in trying to position each country ahead of the global competitive race. US on one side, China on the other. Europe is not so effective in having a strong voice in such contest for global leadership. There is a lack of skills to generate global leaders in new innovative sectors, an inability of the financial system in supporting innovation, a fragmented market, structural rigidities, etc. ... A big effort has been done (as witnessed by the debate and new proposals for industrial policy in Europe), but we have to push more forcefully. Still, the two parts have to be matched: pushing for global champions but also tackling systemic inefficiencies.



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