

15

Human Resource Management and Productivity in Nigerian Civil Service

By

DR. INIOBONG EKONG NKANG

*Faculty of Education,
Akwa Ibom State University,
Ikot Akpaden,
Akwa Ibom State.*

Abstract

The study investigated the relationship between Human Resource Management and Productivity in the Nigerian Civil Service. The population of the study comprised all Civil Servants from salary grade level 8 and above in the Akwa Ibom State Civil Service. This stood at 6682. A sample of 377 respondents was drawn for the study, using Yaro Yamane's sampling formula. Two null hypotheses were formulated to direct the study. Data collection was done using a structured questionnaire tagged "Human Resource Management and Productivity Questionnaire" (HRMPQ). The instrument was duly validated and tested for reliability using Cronbach alpha formula. The reliability coefficient stood at 0.78, justifying the use of the instrument. The null hypotheses were tested at 0.05 alpha level using Pearson Product Moment Correlation Coefficient (r). The null hypotheses were rejected indicating a significant relationship between Human Resource Management and Productivity in the Civil Service. On the basis of this, it was concluded that the level of productivity in the Nigerian Civil service is determined by how effectively human resources are managed in the service. It was recommended, among other things, that managers in the Nigerian Civil Service should be adequately trained and experienced in the management and utilization of human resources. This will ensure a high level of productivity in the service.

The Nigerian Civil Service has its origin in organizations established by the British in colonial times. Nigeria gained full independence in October 1960 under a

constitution that provided for a parliamentary government and a substantial measure of self-government for the country's three regions. Since then, various panels have studied and made recommendations for reforming of the Civil Service, including the Margan Commission of 1963, the Adebo Commission of 1971 and the Udoji Commission of 1972-74. A major change occurred with the adoption in 1979 of a constitution modeled on that of the United States. The Dotun Philips Panel of 1985 attempted to reform the Civil Service. The 1988 Civil Service Reorganization Decree promulgated by General Ibrahim Babangida had a major impact on the structure and efficiency of the Civil Service. The later report of the Ayida Panel made recommendations to reverse some of the past innovations and to return to the more efficient Civil Service of earlier years (Background to the Nigerian Civil Service, 2009). The Civil Service has been undergoing gradual and systematic reforms and restructuring since May 29, 1999 after decades of military rule (Mahmud, 2009). However, the civil service is still considered stagnant and inefficient, and the attempts made in the past by panels have had little effect (Daily Trust, 2009).

In August 2009 the Head of the Civil Service, Stephen Osagiede Oronsaye, proposed reforms where permanent secretaries and directors would spend a maximum of eight years in office. The reform, approved by President Umaru Yar'Adua, would result in massive retirement of Permanent Secretaries and Directors, many of whom are from the North (Nigerian Tribune, 2009). Stephen Oronsaye had said that his goal is for the Nigerian civil service to be among the best organized and managed in the world (Atiku, 2009). Oronsaye retired in November 2010 at the statutory age of 60 and was succeeded by Oladapo Afolabi (Daniel and Emma, 2010).

The civil service is mainly organized around the federal ministries, headed by a minister appointed by the President of Nigeria, who must include at least one member of each of the 36 states in his cabinet. The President's appointments are confirmed by the Senate of Nigeria. There are less than 36 ministries. In some cases a Federal minister is responsible for more than one ministry (e.g. Environment and Housing may be combined) and a minister may be assisted by one or more ministers of State. Each ministry also has a Permanent Secretary, who is a senior civil servant. The ministries are responsible for various parastatals (government-owned corporations) such as universities (Education), National Broadcasting Commission and Nigerian National Petroleum Corporation. Other parastatals are the responsibility of the Office of the Presidency, such as the Independent National Electoral Commission, the Economic and Financial Crimes Commission and the Federal Civil Service Commission. The service has six additional units which provide services to all departments in the Civil Service:

1. Establishments & Record Office (E&RO)
2. Career Management Office (CMO)
3. Manpower Development Office (MDO)

4. Management Services Office (MSO)
5. Common Services Office (CSO)
6. Bureau of Public Service Reforms (BPSR)

The Nigerian Civil Service consists of employees in Nigerian government agencies other than the military. Most employees are career civil servants in the Nigerian ministries, progressing based on qualifications and seniority (News Agency of Nigeria, 2009; Pindiga, 2000).

Human resource management (HRM) is the management process of an organization's workforce, or human resources. It is responsible for the attraction, selection, training, assessment, and rewarding of employees, while also overseeing organizational leadership and culture and ensuring compliance with employment and labor laws. In circumstances where employees desire and are legally authorized to hold a collective bargaining agreement, HR will also serve as the company's primary liaison with the employees' representatives (usually a labor union).

Inyang (1995) defined productivity as the output and input ratio within a given time frame and with special attention to quality and the efficient use of resources. The National Productivity Centre in the information booklet defines productivity as doing the right things the right way, getting more output within less input, getting more output with the same input, punctuality and promptness, elimination of wastes in all forms, justifying your pay, improvement in all aspects of life, producing more and more of better quality. The summary of all definitions of productivity is the balance between all factors of production that will give the greatest returns for the smallest efforts.

Since human resources are essential in all organisations, especially the educational sector, the effective management of staff personnel no doubt has a great influence on productivity. Based on this background, the study examined the relationship between Human Resource Management and Productivity in the Nigerian civil service.

Human Resource Management and Productivity

Human resource management (HRM) as a management process of an organization's workforce, or human resources involves recruitment, promotion, training/development, compensation and staff welfare.

Recruitment involves all prospective applicants for job positions in the organisation. A good recruitment programme is one that is properly planned and well operated. Poor recruitment efforts could lead to the selection of poor applicants. Factors

that influence the type of recruitment to be made include: the quality and number of staff and positions to be filled, the financial position of the organisation, availability of required staff (Huselid, 1995).

Promotion is the advancement of an employee to a higher position or level. This may be in terms of greater responsibilities, more prestige or status, greater skill and especially increased rate of pay. Upgrading is the movement of an employee to a more responsible job within the same occupational unit and with a corresponding increase in their knowledge or skill to maintain a high level of productivity (Cole, 2002).

Training may be used to directly increase the job skills of an individual or a group of individuals by teaching them how to perform their tasks more effectively. For instance, production workers may learn how to handle certain book keeping details associated with their work. Teachers may go for refresher courses, seminars and workshops. It is clear that training contributes primarily to the productivity goal. It helps employees to be up-to-date and meet with modern methods of teaching. Training develops an individual while the paying organisation also benefits from higher productivity (Oluchukwu, 2000).

Compensation, according to Thompson, Arthur and Strickland (2001), is the totality of the financial and non financial rewards that the employee gets in return for working for the organization. Compensation is a major issue in Human Resource Management and its effect on productivity is important. Since compensation is a reward for service to the organization and also a source of recognition and livelihood for employees, therefore, it is related directly to the comfort and welfare of employees. Compensation is a determinant of the extent to which an organization can attract, motivate and retain the best talents in the environment. Brain drain in Nigerian civil service has a lot to do with the poor and inadequate remuneration available in this country. At least two of the needs identified in Maslow's hierarchy of needs theory of physiological and esteem needs are directly related to the level of compensation for workers. These, according to him, are among the factors motivating people to work. The scientific management movement led by Frederick Taylor had conceived money as the most important factor in motivating workers to achieve higher productivity. Taylor therefore advocated the use of an incentive wage system to stimulate or motivate workers to higher performance. Adams (1972) in his version of the Equity theory espoused the idea that the feeling of a worker that he is being adequately rewarded for his and services can motivate him. Central to this theory is the role of perception in motivation and the fact that individuals make comparisons between compensation levels.

From the array of definitions, productivity can be summed up to be the balance between all factors of production that give the greatest returns for the smallest efforts. It is a measure produced by input/output analysis. It can be expressed as the Naira value output per man-hour work. Measurement experts on work management agree that productivity could and can be measured. However, there is differing opinion amongst experts as how precisely the productivity of-the individual or organisation could be ascertained especially in such areas as the service industry like the school system. Productivity can be measured at the national, organisational and individual levels. Technically speaking, when productivity is measured, we are actually measuring the efficiency of the organisation or the individual in question. Given different industries as well as the fact that there are many interpretations of productivity, the different industries employ different yardsticks to measure productivity. It is generally accepted that productivity measure indicates a rate of growth in capabilities of the civil service to accomplish and indeed fulfill its goals and ensuring that consumers receive the goods and services in good condition, promptly and at affordable prices.

Human resource management practices cover a wide range of activities including whether the organization is promoting and rewarding employees based on worker ability and effort; whether it has systems to hire and retain its most productive employees; and whether its deals with underperformers through retraining and effective sanctions.

In order to determine the relationship between Human Resource Management and Productivity in the civil service, it is pertinent to ask whether variations in HRM practices play a role in driving differences in productivity. As Syversson (2010) notes in discussing management as a driver of productivity “no potential driving factor of productivity has seen a higher ratio of speculation to empirical study”. Lazear and Shaw (2008) suggested that some of the dramatic increase in wage inequality in the US, UK and other countries since the late 1970s is due to HRM practices. Lemieux et al (2009) and Guadalupe and Cunat (2009a) also take this position, although the current state of the evidence is still limited. Freeman and Kleiner (2005), found that the abolition of piece rates reduced productivity but increased profits as quality rose in the absence of piece rates.

A pioneering study by Lazear (2000) looked at the replacement of a flat rate hourly pay system by a piece rate pay system for windshield installers in the Safelite Glass Company. In this firm, each employee has a truck and drives to the homes of people who have broken car windshields and installs a new one. Looking 19 months before and after the introduction of the incentive pay plan, Lazear found that productivity increased by around 44% after the policy change, with about half of this due to selection effects and half from the same individuals changing their behavior. The

selection effects are because less productive workers left the company and more productive workers joined, presumably attracted by the higher powered incentives.

In a more recent study, Bandiera, Barankay and Rasul (2007) engineered a change in the incentive pay system for managers in a UK fruit farm. All the workers (fruit pickers) were on piece rate pay, but prior to the policy change the managers were paid a flat rate, whereas afterwards there was a strong element of pay tied to the performance of the workers they managed. The average picker's productivity rose by 21% after the introduction of performance related pay and at least half of this was due to improved selection. The remainder of the effect was due to managers focusing their efforts more on the workers where it had the greatest marginal effect. Examining the mechanism through which this happened, Bandiera et al (2009a) gathered information on social connections from their survey. They found that prior to the introduction of incentive pay managers favored workers to whom they were socially connected irrespective of the workers' ability. After the introduction of performance bonuses they targeted their efforts towards high ability workers regardless of whether they were socially connected or not. This had the effect of increasing the dispersion of productivity (as well as the level).

Another example of cleaner identification is Lavy (2009) who exploited a quasi-experiment in Israeli schools where teachers were offered individual bonuses based on their relative performance as indicated by pupil scores in math and English exams. School assignment was based on a rule determined by past matriculation results and this gives several identification methods including a regression discontinuity design around the threshold. Lavy found significant improvements in teacher performance and no evidence of distortions. Interestingly, the improvement in performance appeared to be due to changes in teaching methods and management. Not all evaluations of performance pay for teachers are so positive, although Lavy's (2007) survey does suggest that the weight of evidence is in favor and more so for individual incentive pay than for group incentives.

In summary, these studies do suggest that individual incentive pay increases productivity. Other studies also show evidence that incentives affect employee behavior, but the precise "incentive effect" on productivity are not so easy to interpret (Martin, Rebitzer and Taylor, 2004).

A summary of studies on Human Resource Management and Productivity indicates that:

1. There is a positive effect on productivity of incentive pay, both individual bonuses and (more surprisingly) group bonuses. This seems true across many sectors, including the public sector (see, for example, the Prentice et al, 2007survey).

2. In addition to a pure incentives effect, there is usually also an important selection effect generating higher productivity – productivity increases because high ability workers are attracted to organizations offering higher powered incentives.
3. The introduction of new forms of incentive pay is generally more effective when combined with other “complementary” factors. There are complements within the bundles of HRM practices (e.g. team work and group bonuses), and between some HRM practices and other firm characteristics (e.g. decentralization and information technology).
4. There are many examples of perverse incentives, for example, when rewards are tied to specific periods of time so that workers manipulate commissions to hit quarterly targets.
5. Incentive pay schemes tend to be associated with greater dispersion of productivity as the effects are stronger on the more able workers, and this is stronger than the selection effect (Martin, Rebitzer and Taylor, 2004).

Since productivity involves human resources, human resource management must be geared to attract, retain and motivate the best human assets available. Nigerian civil servants are capable of being as productive as their counterparts in other parts of the world if they are properly managed towards greater productivity.

Punctuality, Absenteeism and Productivity of Civil Servants

Punctuality and regularity have been a reoccurring phenomenon observed generally in the work behaviour of civil servants. Research by Chubb and Moe (2000) has shown that some of these factors have debilitating effects on the achievement of the overall goals of the civil service. Chubb and Moe (2000) were of the opinion that civil servants attendance affects productivity in the service. They warned that lack of punctuality and chronic absenteeism send underlying messages that performance in the service is not important. They further advised that in the wave of civil service reforms, with its push for productivity, consistency in attendance and punctuality are some of the several important qualities of a good civil servant.

Research shows that absenteeism by civil servants negatively affects staff performance (Strickland, 2001). Staff absenteeism is known to have a negative correlation with productivity (Ballou, 2002; Wood and Montagno, 2003). In effect, as the number of days that a staff is absent increases, the level of productivity decreases.

On the causes of staff absenteeism, Kedjidjian (2005) pointed out that stress can lead to problems in the workplace – such as poor morale, job dissatisfaction, absenteeism, lowered productivity and high medical costs. Unlike stress, job satisfaction is negatively related to staff absenteeism (Pellicer, 2004; Scott and Winbush, 2001). In effect, job dissatisfaction contributes to staff absenteeism. This

view was echoed by Ndu (2007) when she pinpointed that staff who are dissatisfied with their jobs either withdraw physically or remain there to constitute serious danger to organisational effectiveness since they could use such adjustment reactions as displacement, negativity, absenteeism, truancy or apathy in the performance of their jobs.

Maslach, Jackson and Schwah (2006) found out from their study that a significant relationship exists between staff stress and number of days away from work, even though the exact causes of absenteeism was not pinpointed.

On ways of addressing staff absenteeism and improving their attendance, managers were advised to include in their reward for staff good attendance bonus pay, recognition dinners, paid tuition for professional improvement, partial or full payment of accumulated sick leave as severance pay, or conversion of sick leave to personal or vacation days (Hill, 2002; Madden, 2001).

Some researches indicated that when policies reflect staff beliefs, the workers are more likely to adhere to the policies and feel better about their work environment. Eisenhart, Cuthbert, Shrum and Harding (2008) investigated the relationship between workers' beliefs about their work and the extent to which they were willing to implement work policies. Based on the result, the researchers recommended that policy development should be an open discussion among key players on equal terms. This approach can encourage the sharing, examining and negotiating of beliefs and can contribute to effective policy implementation.

The use of incentives to improve staff attendance is known to be very effective. According to Uehara (2009), incentives to employees could be offered on a quarterly or a yearly basis, relative to attendance performance. These incentives could be in form of:

1. Monetary compensation for unused leave;
2. Cash bonus at the end of the year;
3. Certificate/recognition;
4. Public recognition at community gatherings;
5. Attendance reports in newspapers;
6. Promotion opportunities; and
7. Unused annual leave days paid at the end of the year.

Aderoumu and Ehiamentalor (2005) and Ndu (2007) were unanimous in viewing the staff time book as the principal way of monitoring staff punctuality and regularity. According to them, the time book is always kept in the office where every staff will see and write his/her name, time of arrival, time of departure and his or her signature. It helps in checking truancy, punctuality and the duration of staff stay in office for each day.

Purpose of the Study

The study was carried out to investigate the relationship between Human Resource Management and Productivity in the Nigerian Civil Service. Specifically, the study sought to:

1. Determine the relationship between variations in human resource management practices and performance of civil servants in the Nigerian Civil Service.
2. Determine the relationship between variations in human resource management practices and absenteeism by civil servants in the Nigerian Civil Service.

Research Questions

The following research questions were formulated to guide the study.

1. What is the relationship between variations in human resource management practices and performance of civil servants in the Nigerian Civil Service?
2. What is the relationship between variations in human resource management practices and absenteeism by civil servants in the Nigerian Civil Service?

Research Hypotheses

The null hypotheses below were formulated to direct the study.

1. There is no significant relationship between variations in human resource management practices and performance of civil servants in the Nigerian Civil Service.
2. There is no significant relationship between variations in human resource management practices and absenteeism by civil servants in the Nigerian Civil Service.

Methodology

The population of the study comprised all Civil Servants from salary grade level 8 and above in the Akwa Ibom State Civil Service. This stood at 6682. A sample of 377 respondents was drawn for the study, using Yaro Yamane's sampling formula. Two null hypotheses were formulated to direct the study. Data collection was done using a structured questionnaire tagged "Human Resource Management and Productivity Questionnaire" (HRMPQ). The instrument, which had three sections and fifteen items (5 in each section), was dully validated and tested for reliability using Cronbach alpha formula. The reliability coefficient stood at 0.78, justifying the use of the instrument. The null hypotheses were tested at 0.05 alpha level using Pearson Product Moment Correlation Coefficient (r).

Data Analysis and Results

The data collected were analyzed using Pearson Product Moment Correlation Coefficient.

Hypothesis 1

There is no significant relationship between variations in human resource management practices and performance of civil servants in the Nigerian Civil Service.

Table 1: Pearson Product Moment Correlation analysis of the relationship between Human Resource Management Practices and Performance of Nigerian Civil Servants

Variables	Σx	Σx^2	Σxy	R
	Σy	Σy^2		
HRM Practices (x)	1244	12116	24216	0.144
Performance (y)	1312	14614		

N = 377, Significant at 0.05 alpha level; df = 375; Critical r-value = .098

Table 1 presents the obtained r-value as 0.144. This value was tested for significance by comparing it with the critical r-value of .098 at 0.05 alpha level with 375 degrees of freedom. The obtained r-value was greater than the critical r-value. Hence, the null hypothesis was rejected. The result therefore means that there is a significant relationship between variations in human resource management practices and performance of civil servants in the Nigerian Civil Service.

Hypothesis 2

There is no significant relationship between variations in human resource management practices and absenteeism by civil servants in the Nigerian Civil Service.

Table 2: Pearson Product Moment Correlation analysis of the relationship between Human Resource Management Practices and Absenteeism by Nigerian Civil Servants

Variables	Σx	Σx^2	Σxy	R
	Σy	Σy^2		
HRM Practices (x)	1244	12116	24112	0.142
Absenteeism (y)	1222	12012		

N = 377, Significant at 0.05 alpha level; df = 375; Critical r-value = .098

Table 2 presents the obtained r-value as 0.142. This value was tested for significance by comparing it with the critical r-value of .098 at 0.05 alpha level with 375 degrees of freedom. The obtained r-value was greater than the critical r-value. Hence, the null hypothesis was rejected. The result therefore means that there is a significant relationship between variations in human resource management practices and absenteeism by Nigerian civil servants.

Discussion of Findings

Data analysis in hypothesis one indicated no significant relationship between variations in human resource management practices and performance of civil servants in the Nigerian Civil Service. The calculated r-value was greater than the critical r. The null hypothesis was rejected. The finding is backed up by other studies. When human resource management policies reflect staff beliefs, the workers are more likely to adhere to the policies and feel better about their work environment (Eisenhart, Cuthbert, Shrum and Harding, 2008). Variations in human resource management practices can result in increased or decreased productivity depending on the direction of the variations. Variations aimed at creating conducive working environment and job satisfaction lead to increased productivity while the reverse is the case with human resource management practices that dampens workers morale (Shaw, 2009). The Nigerian Civil Service has experienced many reforms. Positive reforms are always greeted with high performance while negative reforms often lead to industrial disputes.

The result of data analysis in hypothesis two revealed a significant relationship between variations in human resource management practices and absenteeism by civil servants in the Nigerian Civil Service. The null hypothesis was rejected. This finding is supported by earlier studies. Chubb and Moe (2000) found out that absenteeism has debilitating effects on the achievement of the overall goals of the civil service. They further noted that civil servants attendance affects productivity in the service. Variations in human resource management practices that boost staff morale lead to increased productivity and vice versa. Civil servants often respond to variations in Human resource management practices with high or low morale to work depending on the effect of the variation on their welfare (Hill, 2002). The use of incentive to improve staff attendance and productivity has been known to be very effective (Uchara, 2009).

Conclusion

Based on the results of the findings, it was concluded that:

1. variations in human resource management practices that have positive effects on the civil servants lead to increased productivity;
2. variations in human resource management practices that dampen workers moral lead to staff absenteeism, hence low productivity.

Recommendations

On the basis of the findings and conclusions drawn, the following recommendations have been made.

1. Managers of the Nigerian Civil Service should carry out reforms that are capable of boosting workers morale for improved productivity.
2. Absenteeism by civil servants should be discouraged with appropriate human resource management practices in order to improve productivity.
3. Staff promotion exercises should be carried out promptly in order to boost the workers' morale for increased productivity.
4. Staff welfare and the working environment should be given particular attention for improved job performance.
5. Human resource management practices in the Nigerian Civil Service should be reviewed regularly in line with global best practices.

References

- Adams, J. S. (1972). *Equity in social change. Advances in Experimental Social Psychology*. Edited by L. Berbouritz. New York: Academic Press.
- Atiku S. S. (2009). "Nigerian civil service will be best in Africa". *Daily Triumph*. Retrieved 2009-12-20.
- Background to the Nigerian Civil Service, (2009). Office of the Head of Service of the Federation. Retrieved 12-21.
- Bandiera, O., Barankay, I. & Rasul, I. (2007). 'Incentives for Managers and Inequality Among Workers: Evidence from a Firm-Level Experiment,' *Quarterly Journal of Economics*.
- Bandiera, O., Barankay, I. & Rasul, I. (2009a). 'Social Connections and Incentives in the Workplace: Evidence from Personnel Data', LSE mimeo forthcoming in *Econometrica*.
- Daily Trust, (2009). *New Policy in the Civil Service*. Retrieved 2009-12-20.
- Daniel I. & Emma O. (2010). "Jonathan appoints Afolabi Head of Service as Oronsaye retires". *Vanguard (Nigeria)*.

- Freeman, R. & Kleiner, M. (2005). 'The Last American Shoe Manufacturers: Decreasing Productivity and Increasing Profits in the Shift from Piece Rates to Continuous Flow Production', *Journal of Industrial Relations* 44(2), 307-330.
- Freeman, R. & Morris K., (2005). 'The Last American Shoe Manufacturers: Decreasing Productivity and Increasing Profits in the Shift from Piece Rates to Continuous Flow Production', *Journal of Industrial Relations* 44(2), 307-330.
- Guadalupe, M. & Vicente C., (2009a). 'Globalization and the Provision of Incentives inside the Firm', *Journal of Labor Economics* (forthcoming).
- Huselid, M., (1995). 'The Impact of Human Resource Management Practices on Turnover, Productivity and Corporate Financial Performance', *Academy of Management Journal*, 38, 635-672.
- Inyang, L. A. (1995). *Strategies for promotion of productivity at the work place*. A paper presented at the Illorin National Productivity Day Symposium, February 21.
- Lavy, V. (2007) "Using Performance-Based Pay to improve the Quality of Teachers" *The Future of Children* 7(1), 87-109.
- Lavy, V. (2009) "Performance Pay and Teachers' Effort, Productivity and Grading ethics", *American Economic Review*, 99(5) 1979-2011.
- Lazear, E., (2000). 'Performance Pay and Productivity', *American Economic Review* 90(5), 1346- 1361.
- Lemieux, W., Bentley M. & Daniel P., (2009). 'Performance Pay and Wage Inequality-super', *Quarterly Journal of Economics*, 124(1), 1-49.
- Mahmud, A. S. (2009). "Leading Public Service Innovation: The Case of the Nigerian Civil Service and Federal Civil Service Commission". *Federal Civil Service Commission*.
- News Agency of Nigeria (2009). "FG to train 4600 civil servants - HOSF". Retrieved 2009-12-21.
- Nigerian Tribune, (2009). "Ripples of tenure system in the civil service". Retrieved 2009-12-20.

- Pindiga, H. I. (2000). "New Service Tenure - Oronsaye, FCSC Boss Clash Over Exams". *Daily Trust*. Retrieved 2009-12-21.
- Prentice, G., Simon B. & Carol P., (2007). 'Performance-pay in the Public Sector: A Review of the Issues and Evidence', Office of Manpower Economics.
- Shaw, K., (2009). "Insider Econometrics: A Roadmap with stops along the way", *Labor Economics*
- Shearer, B., (2004). 'Piece Rates, Fixed Wages and Incentives: Evidence from a Field Experiment', *Review of Economic Studies*, 71(2), 513-534.
- Syverson, C., (2004a). 'Product Substitutability and Productivity Dispersion', *Review of Economics and Statistics* 86(2), 534-550.
- Syverson, C., (2004b). 'Market Structure and Productivity: A concrete Example', *Journal of Political Economy*, 112(6), 1181-1222.
- Gaynor, Martin, James Rebitzer & Lowell Taylor, 2004. 'Physician Incentives in Health Maintenance Organizations', *Journal of Political Economy*, 112, 915-931.