Anil Kumar SAINI, Rekha MISHRA*

THE GENDER GAP IN MANUFACTURING INDUSTRIES: A STUDY OF SELECTED INDUSTRIES IN NEEMRANA, RAJASTHAN

Abstract. *In Neemrana, an industrial town located on the border of the Indian states of Haryana and Rajasthan, various companies from India and abroad have established their units and many newer industries are arriving gradually, creating fresh employment opportunities. But the glaring gender gap in the workforce in the companies and institutions located here is acting as a barrier to reaching the full potential of the region. This study identifies the reasons for and outcomes of the gender gap in manufacturing companies. We propose an instrument for reducing that gap which will help managers simply and efficiently assess their workplace in terms of its conduciveness for achieving gender parity.*
Keywords: *gender gap, analysis, workforce, manufacturing, industry, rubric, Neemrana*

591

Introduction

The gender gap is the set of differences between men and women on various social, political, economic, education, health etc. fronts of any nation and conveys much about it because it indicates the extent of gender-based disparities in a given society. Gender gap analysis is therefore important for bringing about gender equity and improving the quality of life (The Organisation for Economic Co-operation and Development – OECD, 2014). India is ranked 108 out of 145 countries with a score of 0.664 for the Gender Gap Index for 2015 (World Economic Forum, 2015). India is the second largest country in the world in terms of population, most of whom are young adults and citizens of working age.

The female-to-male ratio on the country level for labour force participation is only 0.35, which as shown in Figure 1 signifies inequality. This ratio is even worse for several states when individual states of India are considered.

------

   * *Anil Kumar Saini, Professor, University School of Management Studies (USMS), Guru Gobind Singh Indraprastha University, New Delhi, India; Rekha Mishra, Assistant Professor, Alabbar School of Management, Raffles University, Rajasthan, India.*

India's Human Development Index (HDI) value for 2014 is 0.609. This HDI value rose between 1980 and 2014 from 0.362 to 0.609, an overall increase of 68.1% or average annual growth of about 1.54% (HDR, 2014). However, female participation remains very low in the labour market at 27.0%, compared to 79.9% for men (HDR, 2014). As the Indian economy is opening, huge employment opportunities are being created for its citizens, thus making it imperative to explore the reasons for such inequality and assess possible ways to mitigate the issues involved. Hence, the study's purpose is to establish what is creating the gender gap in the manufacturing workforce, determine its outcomes and suggest best practices for attaining gender parity in that workforce to leverage the benefits it would provide.

Literature review

A review of the latest available gender gap literature shows various studies have found that over time the female workforce's presence in export-oriented manufacturing industries has increased (Tejani and Milberg, 2016). Yet, an overall decline has been seen in India in the participation of female workers (Naidu, 2016) in export-oriented industries. The share of female labour in the Indian workforce is not only low, but also skewed when it comes to wages and job type (Duraisamy and Duraisamy, 2016). Studies over time also indicate the participation of female labour in manufacturing industries has been particularly low (The International Trade Union Confederation – ITUC, 2011). With the increasing digitalisation of manufacturing industries, this scenario is bringing an acute skilled-labour shortage for economies, especially in developing countries (Powell and Chang, 2016). Women's participation in senior management has also been a cause for concern and the topic of many studies, as the general notion has been negative for women, even in developed countries (Schein, 2007). A study by Cristian Bartolucci (2013) showed that the general notion is that women are less productive, more mobile and have less bargaining power and are hence not preferred for higher-level jobs. Incidentally, several studies have established a positive correlation between the share of women's participation in senior positions and the firm's profitability (Christiansen et al., 2016). It is thus becoming reasonable to ensure there are more women in the workforce as part of the ambition for higher company growth.

While the gender gap with respect to educational level is shrinking rapidly, the gap in labour participation has not shown much improvement. Gary Becker (1981) looked at the family as an economic concept which has undergone changes in the last 200 years in Europe. Further, a consideration of the reasons for the gender division at work reflects the gender division at home, as pointed out by Janeen Baxter (1997). Namely, the gender disparity

in the family is mirrored in the workforce in society. One argument for this phenomenon is that efficiency gains arise from the gender-based division of labour as it clearly demarcates the life role of each gender, a notion subscribed to by many developing and underdeveloped economies around the world (Becker, 1981). Surjit Bhalla and Ravinder Kaur (2011) suggested that one's socio-economic background or the caste system in India is a decisive factor in women's workforce participation.

Nevertheless, there is plenty of evidence, for example the United Nations Human Development Report (2014), showing that in countries where there is a small gender gap, female mortality figures are low, there are higher figures for health, education, workforce participation and the quality of overall life is better. In this context, it is becoming imperative to analyse female workforce participation when there is a huge gender disparity.

Although various studies propose several suggestions and tools to reduce the gender gap in the workforce, the authors of this paper were unable to find any tool for assessing what causes the gender gap in the manufacturing industry in developing countries. Therefore, this study presents an attempt to develop a tool to assess the extent of workforce factors that lead to the shrinking of the gender gap, particularly in manufacturing companies.

593

Objectives

The objective of this study is to examine selected manufacturing companies in Neemrana with respect to the gender gap in the workforce, the reasons for it, the outcomes, and to suggest a tool for managers of these companies to help lower the gender gap in the workforce. Uncovering the reasons for the gender gap in these companies will help understand the relevant issues and lead to recommendations to close the gender gap in the manufacturing industry in places such as the city of Neemrana.

Research methodology

The study uses a mixed method approach, that is, methods involving qualitative and quantitative methods were adopted to investigate and understand the phenomenon. Burke Johnson and Anthony L. Turner (2003) showed in their study that use of such an approach leads to a better and complete depiction of the study in context. In this study, the authors initially used secondary data for the period 2000–2016 to understand and identify the factors of the gender gap and the tools available for examining the reasons for that gap. A questionnaire to gather workforce data for the industry was then prepared and sent to all 35 manufacturing companies listed in the Neemrana Industries Association (NIA, 2016) directory. Descriptive

statistics were used to explain the phenomenon observed. Subsequently, the interview method was applied, entailing an unstructured questionnaire to understand the reasons for the skewed gender ratio in these companies. A one-to-one session with HR managers of the selected manufacturing companies in Neemrana was conducted using this questionnaire. The findings from these sessions were recorded in an electronic notepad and later grouped according to various factors based on the general sentiments arising from the discussions with the company officials. This data was used to support and explain the statistics so gathered, thus adding to the descriptive validity and interpretative validity of the research carried out.

A rubric or matrix, comprising criteria and descriptors and used as an assessment tool and for learning situations and performances, was prepared to enable an authentic assessment of the given situation as these are developed after a full analysis of the situation at hand. They are efficient tools for communicating expectations and improving performance. Rubrics are very useful for providing informative feedback as they help pinpoint an area/s in need of improvement. The whole process of creating a rubric promotes critical thinking and deeper knowledge arises from exploring the situation. It is little wonder that the rubric approach motivates equality.

The authors of this paper thus developed a rubric based on the various criteria suggested in the sessions with the HR managers and collated under various descriptors. Development of the rubric contributes to the study's theoretical validity.

The survey was conducted in September 2016. The name of the companies and identities of the respondents are not disclosed for confidentiality reasons.

Data analysis

The profile of companies and respondents shows that of the 56 listed members of the NIA (Neemrana Industries Association, 2016) only 35 companies are engaged in manufacturing. The authors received workforce data from just 6 of these 35 manufacturing companies, with the others refusing to share their workforce data based on confidentiality. The female-to-male ratio (shown in Table 1) was highly skewed for these companies. The workforce gender gap of all the surveyed companies (including those not responding to the workforce data questionnaire but whose premises were visited by the authors) was found to be huge.

Another observation made during the survey was that the female-to-male ratio is better in other countries' companies than in India, but only for the day shift. The participation of women in a supervisory role is also much higher in other countries' companies than in Indian companies.

594

Table 1: GENDER GAP: PARTICIPATION

Company	Total Employees	Male	Female	Ratio (F/M)
A	1900	1900	0	0
B	550	532	18	0.03
C	2500	2440	260	0.11
D	85	65	20	0.31
E	450	250	200	0.80
F	780	710	70	0.09

Source: Primary data analysis.

Of the 35 manufacturing organisations in the NIA directory, the authors only managed to have an interaction with the officials of 17 of them as officials from the other companies were either unavailable or refused to comment. Due to the uncooperative nature of the officials in these companies, following a review of the gender gap literature the authors prepared several questions posed to them in the form of a general discussion to help assess the gender gap in their organisation:

1. What is the female-to-male ratio in your organisation?
2. What is the nature of work in your organisation?
3. What are the hours of work?
4. What are the reasons for the inadequate share of female participation in the mainstream workforce in your organisation and in manufacturing companies in Neemrana generally?
5. What is the socio-cultural environment and perspective of your workforce?
6. What is the rate of attrition among men and women, and the reasons for it?
7. What should be done to improve the situation in your organisation in terms of the gender gap?

The company managers' responses to these questions were noted by the surveyors on an electronic notepad. Since this study is limited by the low response rate, the authors adopted a big-tent criteria approach to assessing the qualitative data (Tracy and Hinrichs, 2017), gathered from the interview session by analysing the general theme or sentiment emerging from the qualitative data. Following this, six themes or criteria were identified and named: Socio-cultural perspective, Infrastructure, Low-skilled labour, Skilled labour, Legal concerns, and Safety and security.

These criteria were then considered regarding their existence or nonexistence using a four-point scale (0–3), where the scale value had the following interpretation for each criterion asked in the question:

Non-existent – (0)
Below expectation – (1)
Meets expectation – (2)
Above expectation – (3)

A rubric/matrix comprising the criteria and descriptors was then developed as a tool for assessment and for use in learning situations and performances to enable an authentic assessment. The four-point rating scale provides a performance value for each criterion. In our rubric, zero points were given for the non-existence of the expected criterion, 1 point if the availability of the criterion was below the expectation level, 2 points if the availability of the criterion met the expectation level and 3 points if the presence of the criterion exceeded the expectation level. Below each rating level are the descriptors used for elaborating the expectation for each criterion. The maximum point or score that can be awarded in an assessment is 18. The score for an assessment was calculated by totalling the points awarded and dividing that figure by 18. This rubric can either be used as is by the officials concerned, or as a template for assessing the workforce gender gap in places like Neemrana.

596

Findings and discussions

Neemrana is an industrial town located on the border of Haryana and Rajasthan. Through the Rajasthan State Industrial Development and Investment Corporation (RIICO), the Rajasthan government has developed industrial zones in various stages in the Alwar district of Neemrana, one of the top five districts in terms of economic contribution in the state of Rajasthan. Apart from the usual industrial areas, the Export Promotion Industrial Park (EPIP) and the Japanese industrial zone in Majrakath are noteworthy as they contain over 100 Japanese companies (Neemrana). Companies from India and abroad have established their units in these industrial areas and many newer companies are arriving, creating fresh employment opportunities. Kazuyuki Motohashi (2015) noted in his study that half of the Indian population is below 25 years of age. This implies a strong need to create a job market for the large population of youth. In this context, the manufacturing zone is a big boon for India. Unfortunately, this optimistic scenario is being eclipsed by an acute shortage of labour of all types i.e. unskilled, semi-skilled and skilled. The issue is pronounced by the glaring gender gap in the companies and institutions located here, acting as a barrier to reaching the full potential of the region.

Following the one-to-one interaction with the HR managers of several companies on the issue of the gender gap in their organisations, which

include both Japanese companies and Indian companies included in the NIA, the discussion considered five broad categories. Since confidentially agreements were signed by each company, the officials and name of the company are not disclosed in this discussion.

Neemrana is a rural area with insufficient civic amenities. The lack of good infrastructure in and around the area prevents workers migrating from nearby cities to the area. The area's social and cultural perspective also does not encourage women to work in general, especially so in manufacturing companies. Some unmarried and educated women do join the workforce, but many also drop out upon getting married as their in-laws do not allow them to work in the industry. Education is not considered important for females and the preference for higher education among females is non-existent in the region. Thus, most of the workforce in companies in Neemrana are males from nearby areas since these companies do not provide residential facilities for workers.

Low-skilled male labour forms most of the workforce in these companies. Many workers are school dropouts because skilled labour is not readily available. These workers are hired by companies and trained for their specific job requirements. Further, the very nature of many jobs like loading material and heavy packaging etc. calls for greater physical stamina, causing male workers to be preferred over females. Overall, the general trend and preference of the manufacturing companies located here in terms of hiring workers is to hire those who are unskilled and train them for the job or a specific task. This modus operandi proves to be most cost-effective for the companies.

The lack of discipline among these less-educated workers is another big issue, with compliance with company instructions, rules and regulations not being taken seriously. HR managers believe it would be very difficult for a female supervisor to manage these types of workers, explaining why they are not hired for supervisory roles. Some organisations have hired a few females for supervisory roles, but only to manage female low-skilled workers. The rate of attrition is also very high among these workers because many leave for greener pastures after having been trained. Companies find it difficult to obtain female workers and train them for the work requirements as the attrition rate of females is higher than their male counterparts. Managing discipline among low-skill female workers is a great issue for companies since, in the social perspective, female workers are unwilling to come to work in the dress code specified by the companies. As a result, there have been many instances of a female worker's casual clothes becoming stuck in a machine due to their inattentiveness.

Since relocation is still a big issue for unmarried female workers in India, most skilled staff are male as these are the workers who have relocated along

597

with their families to Neemrana. The lack of adequate infrastructure in terms of 24/7 medical facilities, primary education, entertainment and other civic amenities means the companies located here generally face huge shortages of skilled workers who consider such facilities as essential for relocation.

The Factory Act prescribes that all industries and companies must give 8 days of maternity leave to a female employee, provide a crèche supervised by an attendant for working mothers with small children, and employ a security guard to ensure the safety and security of female employees. This all means additional expenses on the part of the company. Since not many skilled female workers are available in the region, companies do not consider it judicious to arrange and provide such facilities within their companies that, in turn, increases their overheads.

Given that Neemrana and the nearby areas are rural, the safety and security of goods and human life are a large concern since there have been several cases of robbery, thievery and snatching of items in the area, particularly at night. In such a scenario, a company does not want to take a risk by hiring female employees.

Moreover, companies must maintain separate recreational and work areas for female workers due to socio-cultural requirements that do not encourage the mixing of females and males in the workplace and to avoid instances of sexual harassment.

The social and cultural perspective of the area make it difficult for companies to implement security and safety rules and regulations concerning female employees, for example, the checking of female employees even by a female security guard is also not appreciated and allowed. In process-oriented industries, where the work continues for 24 hours, the above-mentioned reasons mean industries find it difficult to employ women for night shifts.

Following the above discussion and analysis, the authors prepared a rubric for reducing the workforce gender gap (see Table 2) in places like Neemrana. This tool may be used to assess the workforce in places and with a social-cultural environment like Neemrana to understand the environment's conduciveness for both males and females to work and to subsequently make efforts to resolve the identified gender gap issues. This rubric uses six criteria for the gender gap analysis in manufacturing companies in Neemrana. Most companies were rated below expectation or 1 for all six criteria. The overall rubric score for companies in Neemrana was 0.3, implying a non-conducive work environment for female workers.

Table 2: RUBRIC FOR ASSESSING GENDER GAP IN WORKFORCE

Criteria/Scale	Non-existent (0)	Below Expectation (1)	Meets Expectation (2)	Above Expectation (3)
Social-cultural perspective	Women not allowed to work outside of the home	Women not allowed to work in manufacturing industries	Women allowed to work in manufacturing industries but the prior marriage only	Women with children and family also allowed to work in manufacturing industries
Infrastructure	Rural area Lack of civic amenities	Inadequate infrastructure prevents women participation in the labour	Availability of adequate infrastructure for local labour participation	Good infrastructure. Migration of workers from other cities as well.
Low skill labour	Women not allowed to work outside of the home	Lack of adequate low skill women labourers	Availability of low skill labour. But the attrition rate of the female worker is high.	Availability of low skill labour. The low attrition rate of a female worker.
Skilled Labor	Non-availability of low skill labour	Availability of low skill but untrainable labour	Availability of skilled labour	Availability of skilled and trainable labour. The low attrition rate of a female worker.
Legal concerns	Lack of any women-friendly rules and policies	Inadequate women-friendly rules and policies	Implementation of women-friendly rules and policies. But inadequate skilled female means unnecessarily increase their overheads.	Implementation of women-friendly rules and policies. Availability of adequate skilled female workers.
Safety and security	Lack of any safety and security measures for women workers	Inadequate safety and security measures for women workers	Adequate safety and security measures for women workers during the daytime.	Adequate safety and security measures for women workers during the daytime and at night.

The score is equal to ...... /18

Source: Authors' own analysis.

599

The outcomes of the gender gap in companies in Neemrana were as follows:

1. The gap leads to an acute shortage of labour. It is paradoxical that, while boasting its huge potential for employment, the township of Neemrana is also witnessing a huge dearth of labour and skilled labour that is largely due to the gender gap. Even though many women are available in the region to rectify this shortage, for the reasons discussed above the local companies do not employ them. This impacts the full utilisation of the region's manufacturing units and the complete utilisation of the region and its potential. The shortage of labour will eventually compel industries to either move out of the region or close.

2. The inadequate share of female participation in the mainstream workforce hinders progress in gender-equality-related issues like equal pay, the need for a female-friendly environment in the workplace etc. Ultimately, it hampers policymaking and the improvement of issues that impact the position of women.

3. The whole agenda of female literacy and higher education is held back by the gender gap in the workplace. Despite having a primary and higher education, if women are simply not allowed to work or the workplace is not female-friendly, this will eventually raise questions about the very need for the higher education of females and its usefulness.

600

Recommendations

Following analysis of the gender gap in companies in Neemrana, we may conclude the issue has its roots in the social and cultural environment and the lack of adequate education for females in the region. Therefore, the issues concerning the inadequate share of women's participation in the mainstream workforce cannot be resolved overnight, calling for the implementation of various measures in a well-defined, longer period. Nevertheless, these measures are essential and should be taken on war-footing basis to ensure the expected results are achieved within that period.

To begin with, the civic amenities and civic infrastructure must be improved to attract and retain skilled talent within Neemrana and from outside Neemrana. A programme to generate gender-gap awareness among the region's residents should be introduced by the state administration. Efforts to increase awareness of the region's potential in terms of economic prosperity, what that would mean for them, and how the gender gap acts as a hurdle should be urgently made by NGOs, institutions and the state administration to mitigate the issue.

Certain units in manufacturing companies are fully operated and managed by young skilled women. When a female employee departs from such

settings, this causes a considerable loss in the unit's productivity. It is therefore essential that organisations create a more female-friendlier environment at the workplace to encourage women to join the workforce and to continue working even after marriage and childbirth. Women-friendly policies must be implemented by the HR departments of these organisations to promote greater female participation in the labour force. In this context, it also imperative that the state government introduce measures that ensure the safety and security of goods and human life to remove such concerns among the residents and encourage greater female participation in the workforce.

The state government along with NGOs, the state administration, companies and academic institutions across the region should conduct career-counselling workshops and seminars to raise awareness among females about the opportunities available for them after they have completed school and college education.

Conclusion

Although the study only covers those companies included in the NIA (2016), the issues and challenges discussed here are endemic to many other areas of the state of Rajasthan and in some other Indian states. The suggestions and recommendations made can thus be applied to other states and places that are like Neemrana. The rubric for reducing the gender gap will help managers simply and efficiently assess their workplace for its conduciveness for achieving gender parity. The study will give insights to all managers at various levels in the organisation to assist understanding of the gender gap in manufacturing companies, what causes it, and the outcomes, and the best practices for achieving gender parity and leveraging the benefits that would provide. It is hoped that the exploration of the available latest literature concerning the reasons for and outcomes of the gender gap in the manufacturing sector in Neemrana provides a knowledge base for researchers working on issues, regions and demographics that are similar in nature, allow them to conduct empirical research for further analysis, and serve as a guide for project managers while formulating an effective strategy for managing their manufacturing unit.

601

BIBLIOGRAPHY

Bartolucci, Cristian (2013): Gender Wage Gaps Reconsidered: A Structural Approach Using Matched Employer-Employee Data. Journal of Human Resources 48 (4): 998–1034.

Baxter, Janeen (1997): Gender Equality and Participation in Housework: A Cross-National Perspective. Journal of Comparative Family Studies 28 (3): 220–247.

Bhalla, Surjit and Ravinder Kaur (2011): Labour Force Participation of Women in India: Some Facts, Some Queries. LSE Asia Research Centre Working Paper 40. Accessible at http://eprints.lse.ac.uk/38367/?from_serp=1, 10. 8. 2016.

Becker, Gary (1981): A Treatise on the Family. Chicago: University of Chicago Press.

Christiansen, Lone, Huidan Lin, Joana Pereira, Petia Topalova and Rima Turk (2016): Gender Diversity in Senior Positions and Firm Performance: Evidence from Europe, IMF Working Paper, Forthcoming.

Duraisamy, Malathy and P. Duraisamy (2016): Gender Wage Gap Across the Wage Distribution in Different Segments of the Indian Labour Market, 1983–2012: Exploring the Glass Ceiling or Sticky Floor Phenomenon. Applied Economics 48 (43), 4098–4111.

Johnson, Burke and Anthony L. Turner (2003): Data Collection Strategies in Mixed Methods Research. In Abbas Tashakkori and Charles Teddlie (eds.), Handbook of Mixed Methods in Social and Behavioural Research, 297–319. London and New York: Sage.

Motohashi, Kazuyuki (2015): India's Neemrana Industrial Park for Japanese Firms. In Global Business Strategy: Multinational Corporations Venturing into Emerging Markets, 93–104. Tokyo: Springer.

Naidu, Sirisha C. (2016): Domestic Labour and Female Labour Force Participation. Economic and Political Weekly 51 (44–45).

Powell, Catherine and Ann Mei Chang (2016): Women in Tech as a Driver for Growth in Emerging Economies. Council on Foreign Relations, 5. 7. 2016. Available at https://www.cfr.org/report/women-tech-driver-growth-emerging-economies, 13. 9. 2016.

Schein, Virginia. E. (2007): Women in Management: Reflections and Projections. Women in Management Review 22 (1): 6–18.

Tejani, Sheba and William Milberg (2016): Global Defeminization? Industrial Upgrading and Manufacturing Employment in Developing Countries. Feminist Economics 22 (2): 24–54.

Tracy, Sarah. J. and Margaret. M. Hinrichs (2017): Big Tent Criteria for Qualitative Quality. In Jörg Matthes, Christine S. Davis and Robert F. Potter (eds.), The International Encyclopedia of Communication Research Methods, 1–10. New York: Wiley.

SOURCES

Human Development Report (2014): Accessible at http://hdr.undp.org/en/countries/profiles/IND#, 26. 10. 2016.

Neemrana Industries Association (2016): Accessible at http://neemranaindustries.com/, 19. 9. 2016.

602

Neemrana. Accessible at https://en.wikipedia.org/wiki/Neemrana, 19. 9. 2016.

The International Trade Union Confederation – ITUC (2011): Accessible at http://www.ituc-csi.org/IMG/pdf/Women_8_march_EN.pdf, 27. 10. 2016.

The Organisation for Economic Co-operation and Development – OECD (2014): Women, Government and Policy Making in OECD Countries – Fostering Diversity for Inclusive Growth. Accessible at http://www.oecd.org/gov/women-government-and-policy-making.htm, 28. 10. 2016.

World Economic Forum. Accessible at http://reports.weforum.org/global-gender-gap-report-2015/economies/#economy=IND, 26. 10. 2016.

603