



**Asia-Pacific
Economic Cooperation**



USAID
FROM THE AMERICAN PEOPLE

MAKING THE ECONOMIC CASE

*IMPLEMENTATION OF THE APEC HEALTHY WOMEN,
HEALTHY ECONOMIES POLICY TOOLKIT*

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CONTENTS

Contents	i
Acknowledgments	iii
Executive Summary	vii
1. Introduction	1
2. The HWHE Policy Toolkit	3
3. Literature Review	5
Occupational Injuries	5
Anemia	6
Gender-Based Violence	6
4. The Representative Economies	9
5. General Methodology	11
6. Issue-specific Methodologies	13
Workplace Health and Safety	13
Health Access and Awareness—Anemia	15
Gender-Based Violence	18
7. Results & Conclusions	23
References	27

Illustrations

Figures

Figure 6-1: Occupational Injury Impact	15
Figure 6-2: Anemia Impact—Methodology 1	17
Figure 6-3: Anemia Impact—Methodology 2	18
Figure 6-4: Sexual Harassment Impact Method	19
Figure 6-5: Domestic Violence Method	21

Tables

Table 6-1: Occupational Injury Data	14
Table 6-2: Anemia Data	16
Table 6-3: Sexual Harassment Data	20

Table 6-4: Domestic Violence Data	20
Table 7-1: Final Impact	25

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ABBREVIATIONS

APEC	Asia-Pacific Economic Cooperation
DALY	Disability-adjusted life years
GBV	Gender-based violence
GDP	Gross domestic product
HWHE	Healthy Women, Healthy Economies
HRDWG	Human Resources Development Working Group
HWG	Health Working Group
IDA	Iron deficiency anemia
ILO	International Labor Organization
NGOs	Nongovernmental organizations
NSC	National Safety Council
PPP	Purchasing power parity
PPWE	Policy Partnership on Women and the Economy
UN	United Nations
UNDP	United Nations Development Programme
USAID	U.S. Agency for International Development
US-ATAARI	US-APEC Technical Assistance to Advance Regional Integration
WHO	World Health Organization

EXECUTIVE SUMMARY

Women continue to face barriers to entering, remaining in, and advancing in the workplace as they remain vastly underrepresented in the Asia-Pacific region. The United Nations reports that limits on women's workforce participation across the Asia-Pacific region cost the region's economy an estimated US \$89 billion annually. Governments and businesses increasingly recognize that addressing health related issues is a key way to engaging women more fully in employment throughout the economy. However, governments and businesses need more than social and moral arguments to justify changes in policies and laws that impact millions. The following report articulates the economic impact of health-related policies that will help expand women's full participation in the workforce of each of APEC's 21 economies.

Actions to address health-related barriers and lower these economic costs can be found in the policy toolkit adopted in 2015 by the APEC Healthy Women, Healthy Economies (HWHE) Initiative. The initiative, launched in 2014, aims to address issues impacting women's health and access to health services with the goal of improving women's economic participation across the region. This report, draws on the initiative's previously completed literature review and additional research, utilizing key impact studies and applying them to the APEC economy context using indicators and data collected on global and domestic levels. Specifically, the analysis estimates the likely benefits of implementing certain policies outlined in the HWHE Policy Toolkit by quantifying the costs related to women's workplace injuries. The analysis quantifies the costs arising from occupational injuries, the impact of anemia—a widespread condition disproportionately affecting women, especially poor women—on productivity and workforce participation, and the economic costs of two forms of gender-based violence: workplace sexual harassment and, because its effects spill into the workplace, domestic violence.

The analysis was conducted for one developed APEC economy and one developing APEC economy. The estimated impacts for the representative economies serve as a broad illustration to estimate the likely impacts of implementing HWHE Policy Toolkit actions across other APEC economies. The analysis is not meant to presume that the specific impact of interventions in one APEC economy will be the same in another. Rather, the study illustrates costs incurred when the health of women is compromised in the workplace and articulates economic benefits when certain policies or programs are implemented. The following is a summary of the findings of this report specific to toolkit actions.

Occupational injuries. The frequency and duration of workplace injuries, costly to employees and employers alike, vary significantly between the sexes. Workplace illness and injuries not only cause absenteeism but also affects overall productivity as injured or ill employees often come to work, and their diminished productivity affects the productivity of other workers as well. This report finds that female work-related injuries can cost a developed APEC economy up to \$2.4 billion in a year, and a developing APEC economy up to \$7.7 million. HWHE Toolkit policies directed at workplace injuries provide a direct economic benefit by lowering such costs.

Inadequate access to and awareness of health services. Ill workers cannot engage in their jobs fully, and thus experience lowered productivity. Anemia is a chronic illness that disproportionately affects women. The analysis estimates that anemia in working women can cause work-related losses of nearly \$280 million annual for a developed APEC economy and

nearly \$1.2 billion annually for a developing APEC economy. Based on anemia alone, it is evident that ensuring access to and awareness of health services for women is imperative for increasing worker productivity.

Sexual harassment. Women who are sexually harassed at work often suffer physically and psychologically, diminishing their productivity and even discouraging them from coming to work at all. The one-year economic cost of sexual harassment is estimated to be almost \$186 million in a developed APEC economy and \$57 million in a developing APEC economy. Programs to combat sexual harassment in the workplace could help to avoid these costs and in turn result in an economic benefit.

Domestic violence. Though occurring outside of the workplace, intimate-partner violence can cause damaging psychological effects, leading to issues of worker absenteeism and decreased productivity. This report finds that programs and policies to reduce domestic violence can help to alleviate up to \$13.4 billion in losses in a developed APEC economy and \$2.7 billion in a developing APEC economy.

With strong evidence of economic impacts, the argument for improving women's health extends beyond social or ethical responsibility and underpins critical government reforms in HWHE areas. This analysis bolsters the argument that when women are healthy, they can more fully engage in an economy's workforce, and thereby enable an economy to realize its full potential.

I. INTRODUCTION

APEC has consistently acknowledged that including women in the workforce is crucial to achieving sustainable economic growth. APEC Leaders recognized in 2013 that “economic inclusion of women is critical for business performance and economic prosperity,” and committed to promote integration of gender considerations into APEC activities. In 2014, APEC acknowledged the need to address the unmet health needs of women across the region as a means of increasing their economic participation. The APEC Health Working Group (HWG), Human Resources Development Working Group (HRDWG), and the Policy Partnership on Women and the Economy (PPWE) thus established the multiyear APEC Healthy Women, Healthy Economies initiative, led by the United States and the Philippines. This initiative aims to enhance women’s economic participation by addressing conditions that affect women’s health and access to health services.

The APEC Healthy Women, Healthy Economies initiative groups the barriers into five categories:

- Workplace Health and Safety
- Health Access and Awareness
- Sexual and Reproductive Health
- Gender-based Violence
- Work/Life Balance.

In 2015, the initiative conducted a literature review and introduced a policy manual, the Healthy Women, Healthy Economies (HWHE) Policy Toolkit, for APEC government officials, policymakers, nongovernmental organizations (NGOs), and the private sector. This toolkit gives recommendations for improving female labor force participation through better health. APEC member economies have committed to piloting elements of the toolkit by 2019. As a result, women in the region can expect to be healthier, increasingly participate in the labor force, and be more likely to remain in the labor force.

This analysis reinforces the case for implementing the toolkit by identifying issue areas and estimating the economic costs that could be avoided with implementation of programs and policies in those areas. While many economies and businesses view the implementation of these programs as an important social and ethical responsibility, this economic report provides measurable impacts – hard numbers – that economies and businesses need to garner resources and political support for change and reform.

The economic case focuses on taking action in three key areas: workplace health and safety, health access and awareness, and gender-based violence (GBV). The report quantifies the effects of interventions in these areas as there is literature and data to conduct such analysis. The monetary effects are demonstrated in an APEC developing economy and developed economy. These illustrative economies were chosen to represent APEC's economic diversity and suggest how each of APEC's 21 economies could similarly benefit from actions.

Several past studies have estimated the economic impact of workplace injuries, gender-based violence, and anemia among other diseases, but they have been conducted in regions other than

Asia-Pacific, or in individual economies such as the United States. These studies contain valuable evidence, which can be used as a starting point for applying specific data to yield APEC-specific results.

This report begins by giving the background of the HWHE Policy Toolkit. A review of the literature in the health areas covered by this report follows. The report then describes the methodology, followed by detailed analysis of the likely effects of implementing these measures in illustrative developed and developing APEC economies, including detail on how the effects were calculated.

The findings of this report were scheduled for initial presentation at the APEC Healthy Women, Healthy Economies Workshop: From Vision to Action, in Lima in August 2016.

2. THE HWHE POLICY TOOLKIT

The HWHE Policy Toolkit is organized around five areas: workplace health and safety, health access and awareness, gender-based violence, sexual and reproductive health, and work/life balance. The five areas resulted from an initial set of barriers to health care that prevent women's economic participation. These were identified in an August 2014 joint dialogue of the APEC Human Resources Development Working Group, Health Working Group, and the Policy Partnership on Women and the Economy in Beijing. The original barriers focused on:

- On-the-job health issues contributing to women leaving the workforce—workplace health and safety, gender-based violence, stress, and mental health;
- Access to health services and awareness of health needs that prevent women from joining or remaining in the workforce—lack of awareness, limited time to access health services at the workplace, lack of affordable and accessible healthcare, lack of women-friendly health services;
- Issues contributing to women leaving the workforce—lack of adequate maternity and paternity leave, lack of a private, sanitary location in the workplace for nursing mothers to pump, and pressure and expectations placed by society on women; and
- Issues specifically faced by women in the informal sector—including agricultural workers, migrant workers, and women in conflict zones or emerging from disasters such as lack of access to any healthcare, and lack of budget/resources.

Since 2014, the barriers have evolved to the five areas examined in the HWHE Policy Toolkit. This report focuses on workplace health and safety, health access and awareness, and gender-based violence, areas where data are most readily available.

Workplace health and safety. Women are typically employed in less hazardous professions than men and rates of women's occupational mortality and morbidity tend to be lower than men's. However, unlike in the case of acute injuries, women are more likely than men to continue to work (withstanding the pain and discomfort) when they have chronic injuries such as musculoskeletal disorders. The nature of these injuries makes it more difficult to attribute them to the workplace. Further, many women working in the informal sector are exposed to additional health risks from poor conditions and unsafe and unregulated environments—where few data are collected on work-related injuries to women.

Workplace injuries are costly to both employers and employees due to missed work and diminished productivity. Injured or ill employees who nonetheless come to work often affect the productivity of other workers in addition to their own productivity.

Health access and awareness. Non-communicable diseases and other illnesses can diminish worker productivity and thus causes detrimental economic effects. Anemia is a prime example. The accompanying fatigue, dizziness, headaches, and shortness of breath can impede productivity.

Gender-based violence. Whether occurring inside or outside the workplace, gender-based violence, can limit women's ability to fully participate in economic activities. Women who experience sexual harassment at work often experience physical and psychological effects, diminishing their productivity and discouraging them from coming to work at all. The physical and psychological harm from domestic violence also leads to absenteeism and decreased productivity.

The physical, emotional, and economic toll of women's unmet health needs is clear. Additionally, employers and entire economies pay a monetary price because these health issues affect absenteeism, productivity, and retention. It is evident that tackling challenges in these areas is crucial for increasing women's economic participation across the Asia-Pacific. When women are healthy, they are able to fully participate in their jobs and contribute to the economic growth of not only their economy, but the region as a whole.

3. LITERATURE REVIEW

A preliminary review of the literature informed this analysis. This initial review included consultation of the HWHE literature review that formed the basis for and validated the HWHE Policy Toolkit,¹ and further desk research. The findings are highlighted below.

OCCUPATIONAL INJURIES

Although men and women suffer occupational injuries, the frequency and duration of these injuries differ for women. In APEC economies, female occupational injuries contribute to 16%–40% of total nonfatal occupational injuries, according to ILO data.² In the United States, 87% of female occupational injuries and illnesses occurred in the services sector due in part to significantly higher rates of female employment (Hoskins 2005). The most prevalent type of female injury is musculoskeletal injuries, which make up 36% of all female occupational injuries in the United States (Hoskins 2005). This type of injury includes injury of muscles, nerves, tendons, joints, cartilage, and spinal disks due to overexertion, repetitive motion, and bodily reactions (Hoskins 2005, 4). Females on average can lift about half as much weight as the average male can (Messing and Ostlin 2006) and consequently many female musculoskeletal injuries occur in occupations that require lifting heavy objects. Additionally, women constitute the majority of workers in certain sectors or jobs that pose health risks. Textile work and housecleaning jobs are two examples; workers are exposed to chemicals that can lead to chemical burns and nerve damage (Carvalho 2011). Even when working in the same industry, women may be at greater risk of chemical injury due to biological factors—the smaller average body size of women leads to increased chemical concentrations within the body, and women have a higher proportion of body fat, making it easier for chemicals to reside in tissue (Carvalho 2011).

Legislative regulation on female involvement in hazardous occupations is viewed differently throughout the world. In some economies, the belief may prevail that such limitations would be a violation of equal opportunity for women. In others, laws may ensure that women are not overworked, shielding them from excessive occupational injuries. Even without laws, companies may take it upon themselves to reduce risk of injury to maintain a healthy labor force. A survey by the insurer Liberty Mutual in 2005 found that 60% of senior financial executives reported that every \$1 invested in injury prevention returned \$2 more in the United States.³

Impact studies on occupational injuries focus on the impact of both female and male injuries. These studies include economy-specific effects such as one study in the United States estimating

¹ Find the APEC HWHE Literature Review at <http://healthywomen.apec.org>.

² ILO database accessible at http://www.ilo.org/ilostat/faces/help_home/data_by_subject?_adf.ctrl-state=62vw8ncqt_9&_afLoop=197737270955442#!.

³ The initial report cannot be found on the company website. The conclusions are frequently cited in US government and private industry publications, including here: <https://www.grainger.com/content/safety-cost-workplace-accident>.

\$150 billion in direct and indirect costs from occupational injuries in 2005 (Burton 2010). Female-specific impact studies are lacking and female occupational injuries is a topic for further data collection and subsequent research.

ANEMIA

Estimates by the World Health Organization (WHO) in 2008 indicated 1.62 billion people worldwide, about one quarter of the global population, had anemia. Estimates from 2005 indicated that twice as many women as men have the condition (WHO). The leading cause of anemia is iron deficiency, which accounted for about half of all cases, the WHO reported in 2008. Women are at high risk for iron deficiency anemia (IDA) due to blood loss, diet, and pregnancy.

Symptoms of anemia, including fatigue, dizziness, headaches, and shortness of breath, reduce productivity in the workplace. For a moderately anemic individual, a 10% increase in hemoglobin levels would result in a 10%–20% increase in work output (Levin 1986). For pregnant women, who face high levels of IDA, it can reduce cognitive performance and also cause developmental problems in their babies, lessening their cognitive potential (Burke et al. 2014). Economy-specific data on anemia throughout the APEC region show a discrepancy between rates in developed economies and rates in developing economies. Much of this difference is because of diet. People in the lower socio-economic groups tend to eat less meat, fish and poultry, which contain iron (Osungbade and Oladunjoye 2012). Malnutrition through insufficient diet and poor nutrient absorption has many effects on the human body and reduces human productivity by 10%–15% and gross domestic product by 5% to 10% (Gillespie and Haddad).

GENDER-BASED VIOLENCE

Gender-based violence is one of the most common forms of violence worldwide and has serious reproductive and physical health effects on its victims. This study examines two forms: workplace sexual harassment, and domestic violence.

Sexual harassment disproportionately affects women. Women were victims in 82% of all 2012 reported sexual harassment cases in the United States, according to the Equal Employment Opportunity Commission.⁴ Many instances of sexual harassment go unreported due to concerns over job security and being alienated from coworkers. Along with these concerns, women can have unhealthy reactions to sexual harassment including anxiety, depression, sleep disturbance, weight fluctuations and headaches (Gutek and Koss). These mental and physical consequences can seriously impede women's performance at work and can cause women to leave their jobs. This has huge costs on organizations in the form of increased job turnover, absenteeism, inefficient individual and group productivity, loss of managerial time, and legal expenses from litigation and payment (Willness et al. 2007). In the United States this cost was estimated to be \$22,500 per person experiencing sexual harassment (Willness et al. 2007). Only about half of

⁴ http://www.eeoc.gov/eeoc/statistics/enforcement/sexual_harassment_new.cfm.

the APEC economies have civil remedies for sexual harassment, according to World Bank's 2016 Women, Business, and the Law report.⁵

Domestic violence. One in three women has suffered domestic violence (WHO 2016). While the majority of domestic violence occurs at home, its effect on women extends to the workplace, resulting in lost job productivity and absenteeism (Chappell and Di Martino 2006). Victims of domestic violence in the United States miss on average 33.9 days of work a year and are less productive in both individual and group tasks (Vara Horna 2013). In Chile, losses from domestic violence totaled 2% of GDP, Morrison and Orlando reported in 1999. This violence has large consequences for individuals, causing between 21% and 60% of victims to lose their jobs (Vara Horna 2013). Morrison and Orlando found that lifetime earnings for victims of domestic violence decreased by 34% to 46%.

⁵ http://wbl.worldbank.org/~/_media/WBG/WBL/Documents/Reports/2016/Women-Business-and-the-Law-2016.pdf

4. THE REPRESENTATIVE ECONOMIES

The estimates of the maximum benefits (calculated as costs that can be avoided) to the economy from implementing actions in the HWHE Policy toolkit are based on data from the Philippines and Australia—one developing economy and one developed economy in APEC. Eleven of the 21 APEC economies are considered developing, based on their classification as travel eligible by APEC. The two selected economies have a breadth of data collected in recent years by economy-level agencies and by the World Bank and other international sources.

Utilizing a representative developing and developed economy captures the diversity in APEC—which comprises a range of both developing and developed economies. Actions, reforms, and policies can have different challenges and effects in developed economies and developing economies. These challenges and effects reflect differences in levels of industrialization, in workforce composition, life expectancy rates, and educational attainment. Mechanisms for policy development and enforcement also vary from economy to economy.

The selection took into account which economies, based on a number of factors including GDP and workforce participation rates, could be most representative of others in the region. For instance, economies with extreme traits, including the wealthiest or with an extremely low women's labor force participation rate, would not be suitable representatives of other economies throughout APEC.

Data from international sources are available for the two selected economies. The availability of such data ensures reliable results. The wealth of data helps readers from APEC economies to understand the scale of potential effects of similar interventions in their economies.

The representative developing economy has annual GDP per capita of \$2,872.50 and per capita health expenditure of \$328.90 (purchasing power parity, or PPP). This developed economy has a total labor force participation rate of 65% and a female labor force participation rate of 51%. The female population is 49.8 million, or 49.5% of the total.

The representative developed economy has annual GDP per capita of \$61,995.80 and per capita health expenditure of \$4,357.30 (PPP). This developed economy has a total labor force participation rate of 65% and a female labor force participation rate of 59%. Fifty percent of the population is female (11.9 million).

It is important to caution that this economic case is not meant to be a comparative study nor is it meant to suggest that the specific impact of interventions in one APEC economy will be the same in another. Comparisons are limited, for instance, because data sources and collection methods can vary from economy to economy, especially when data are collected by domestic data agencies instead of international agencies. Rather, the study illustrates costs incurred when the health of women is compromised in the workplace and correspondingly articulates economic benefits when certain measures are implemented.

5. GENERAL METHODOLOGY

The general approach to this analysis consisted of several related steps. These include analysis of the toolkit to identify the areas that would be most relevant and quantifiable in terms of impact, review of literature and identification of available data, selection and analysis of the two APEC economies for assessing impact, and calculation of impact based on findings in the literature and available data for the APEC developing and developed economies selected.

Several factors were taken into account to choose the specific areas for which impacts were to be demonstrated. Extensive research was conducted on all five toolkit areas and multiple actions within the areas, to identify relevant data and literature relating to impact studies. The findings from the research were examined and analyzed to determine the best quality and combination of information for each toolkit area that could be used to calculate the economic impacts. This process was used to select three out of five toolkit areas for impact analysis. For example, the impact of anemia on the economy was considered because existing data and studies on this particular illness offered the strongest data point combination. In addition, the prevalence rate of anemia in women is double that of men.

In addition to availability of data, the toolkit actions considered for analysis were selected based on whether a majority of APEC economies are actively implementing, debating, or considering the suggested toolkit actions. Specifically, whether and what legislation and enforcement mechanisms are in place in the APEC economies was examined. The selection of toolkit areas favored ones where economies had room to improve—where they hadn't already tackled the issue completely, but might want to make the case for additional reforms, even if they have implemented some measures previously.

The corresponding literature review had two tracks; while one focused on identifying impact studies conducted by other researchers, including indicators and data used by such studies, the other focused on identifying economy-level indicators for measuring the impact of these measures and data relating to these indicators. The impact studies were drawn from the existing literature review, completed by US-ATAARI in 2015, as well as a broad range of sources from multilateral and international organizations including the World Health Organization.

As mentioned earlier, the estimates of impacts reported in this study are based on data from one developing economy and one developed economy in APEC. The selection of the two economies was based on several factors, including availability of data and reliability and credibility of data. Additionally, in order to ensure that the selected developing and developed APEC economies are not outliers, a number of factors including GDP and workforce participation rates, were used in the identification of the economies. For instance, economies with extreme traits, including the wealthiest or with an extremely low women's labor force participation rate, would not be suitable representatives of other economies throughout APEC.

The economic impact of the toolkit actions were calculated by appropriately applying the impacts estimated and the indicators used in the existing impact studies, to indicators and data collected for the two selected APEC economies. The economic benefits of implementing the HWHE Policy Toolkit—with respect to workplace safety, gender-based violence, and health awareness—are comparable to the economic costs that can be avoided by implementing the

HWHE Policy Toolkit measures that would increase workplace safety, improve health access and awareness, and reduce gender-based violence. In other words, the economic benefits and costs are two sides of the same coin. Given that the existing data and impact studies allow for the estimation of the economic costs related to workplace safety, gender-based violence and health awareness; these estimates can be utilized and interpreted as the benefits of implementation, keeping in mind that there are costs to implementation. It is important to note that our analysis has not considered the costs related to the implementation of the interventions, and it merely reflects the costs that can be avoided if such interventions are put in place.

6. ISSUE-SPECIFIC METHODOLOGIES

This section describes the detailed methodologies that are employed for each of the economic impact estimations. Each subsection presents an introduction of the research and data used for the toolkit areas mentioned. This is followed by a description that outlines the reasoning for each methodology.

WORKPLACE HEALTH AND SAFETY

The estimation of impacts of nonfatal occupational injuries began with the calculation of the daily cost of occupational injuries, utilizing two reference studies from the United States. Then, the economy-specific costs per day, using average wage rates, was calculated. This was then scaled for each of the two representative economies using the annual number of non-fatal occupational injuries among women and the days lost per injury.

Nonfatal occupational injuries cost \$186 billion in the United States in 2007 (Leigh 2011). A National Safety Council study found the total economic costs of occupational *deaths and injuries* to have been \$142.2 billion in the United States in 2004, with 120 million days lost (2006). Given that our analysis concerns non-fatal occupational injuries, the days lost figure was adjusted to eliminate deaths. This adjustment was based on U.S. Department of Labor Occupational Safety and Health Administration indicating 12 worker deaths per day, based on 2013 data the from Census of Fatal Occupational Injuries Charts.

Using this cost and the number of nonfatal injuries, a conversion factor was determined for the United States that allowed a conversion of time values into cost, i.e., \$1,814/day was lost due to female occupational injuries (ILOSTAT Database). The reference values used to calculate this conversion factor – days lost and impact numbers in dollar value amounts – corresponded to particular years in the database and the reference study. Since the database value and the reference study are relatively recent, we assumed these reference values, and therefore the conversion factor, to be an average annual value, even though they originally correspond to particular years.

This conversion factor was then adjusted for each representative economy by comparing the monthly average wages of the representative economies with the average for the United States, which is based on 2009 values (ILO a). The resulting conversion factors were \$1,451/day for the representative developed APEC economy and \$155/day for the representative developing APEC economy.

The ILOSTAT Database shows the annual number of days lost per occupational injury for females is 8.4 days⁶ (2011) in the representative developing economy and 52.8 days (2000)⁷ in

⁶ This data covers the days lost per occupational injury for the private sector only.

the representative developed economy. The annual average of female work-related injuries was 5,937 (2011) in the representative developing economy and 30,850 (2008) in the representative developed economy (table 6-1).

Economy-based conversion factors were used to convert days lost from occupational injury into cost and that number was scaled up by the number of injuries. The resulting figures of \$2.4 billion and \$7.7 million (in 2016 current dollars) denote the overall economic impact for developed and developing economies respectively—i.e., the maximum benefits that would accrue to the economy if workplace injuries to women can be eliminated.

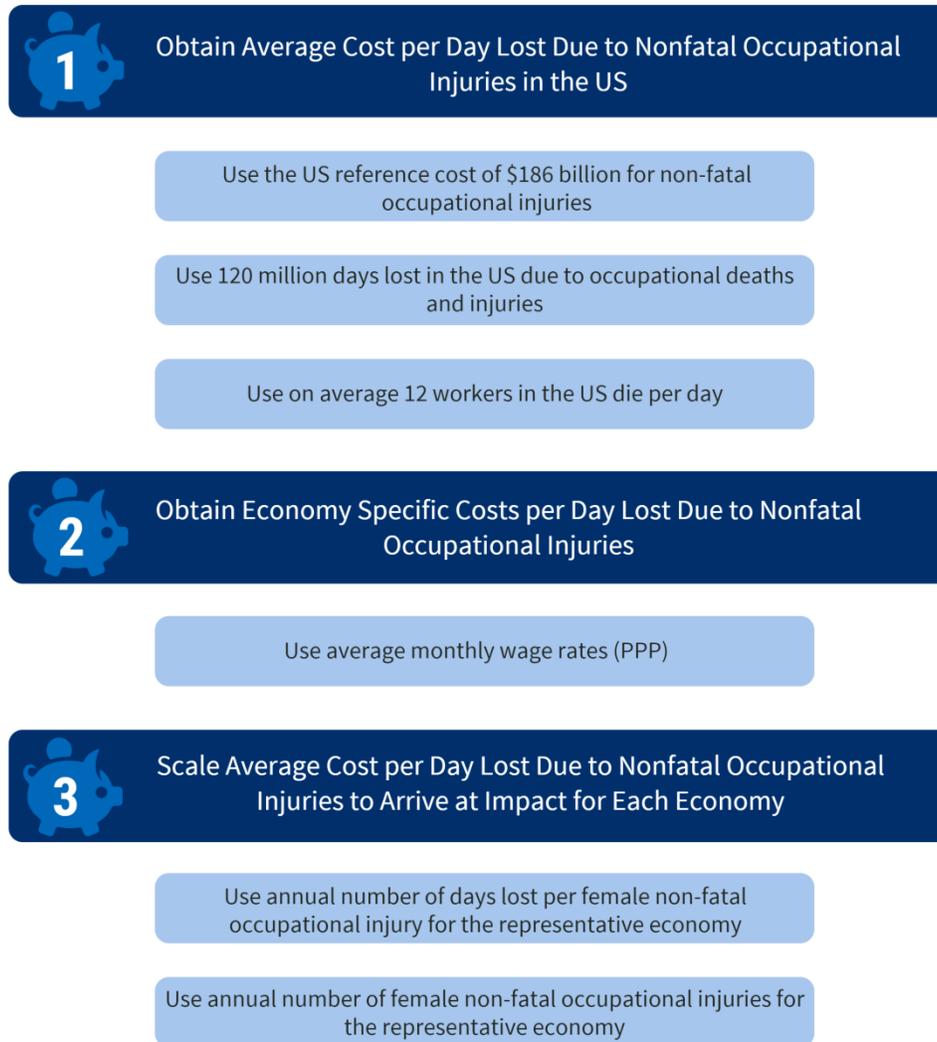
Table 6-1: Occupational Injury Data

Economies	Total Female NonFatal Occupational Injuries	Days Lost per Occupational Injury	Average Monthly Wage (US\$)
Developed	30,850	52.8	2,610
Developing	5,937	8.4	279
The US			3,263

Source: ILO

The Figure 6-1 summarizes the methodology.

⁷ Data on the number of sex-disaggregated nonfatal occupational injuries are available from the ILO for the representative developed economy. While the ILO database does not contain sex-disaggregated data for the number of nonfatal injuries in the representative developing economy, the overall number of nonfatal injuries is available. Data from the ILO on nonfatal injuries in several APEC economies are used to estimate sex-disaggregated nonfatal occupational injuries in the representative developing economy. The economy-specific values for days lost per female occupational injury were obtained from the ILO database.

Figure 6-1: Occupational Injury Impact

All dollar-based values were converted into current dollars.

HEALTH ACCESS AND AWARENESS—ANEMIA

More than 1.6 billion people—almost one-quarter of the world's population—suffer from anemia, the WHO estimated in 2008. Women have disproportionately high rates of anemia for biological and socioeconomic reasons. The WHO reports that in 2005 a total of 468 million non-pregnant women of reproductive age and 56 million pregnant women had anemia compared with 260 million anemic men of ages 15–60, meaning a prevalence ratio of 2:1 for women to men. Anemia prevalence is typically higher in developing economies than developed economies, due to diet and other health factors (WHO 2008). The WHO reports anemia prevalence at rates of 25.4% and 17.5% for the representative developing and developed economies, respectively (table 6-2).

Table 6-2: Anemia Data

Economies	Anemia Prevalence in Women (%)	Percent of Workforce that Is Female	Female Labor Participation Rate (%)	Number of Working Women with Anemia (ages 15–49)
Developed	17.5	68.0		986,523
Developing	25.4	39.2		4,361,791
World			50	262,000,000

Sources: *Index Mundi*; *World Bank 2015*; *WHO 2008*

This analysis applied two methodologies for examining the economic benefits of reducing anemia in female workers through increased awareness and access to health care. The first begins with the prevalence of anemia in women of reproductive age. The second used, as a starting point, an estimate of anemia's impact on GDP in developing economies, and applies only to the representative developing economy.

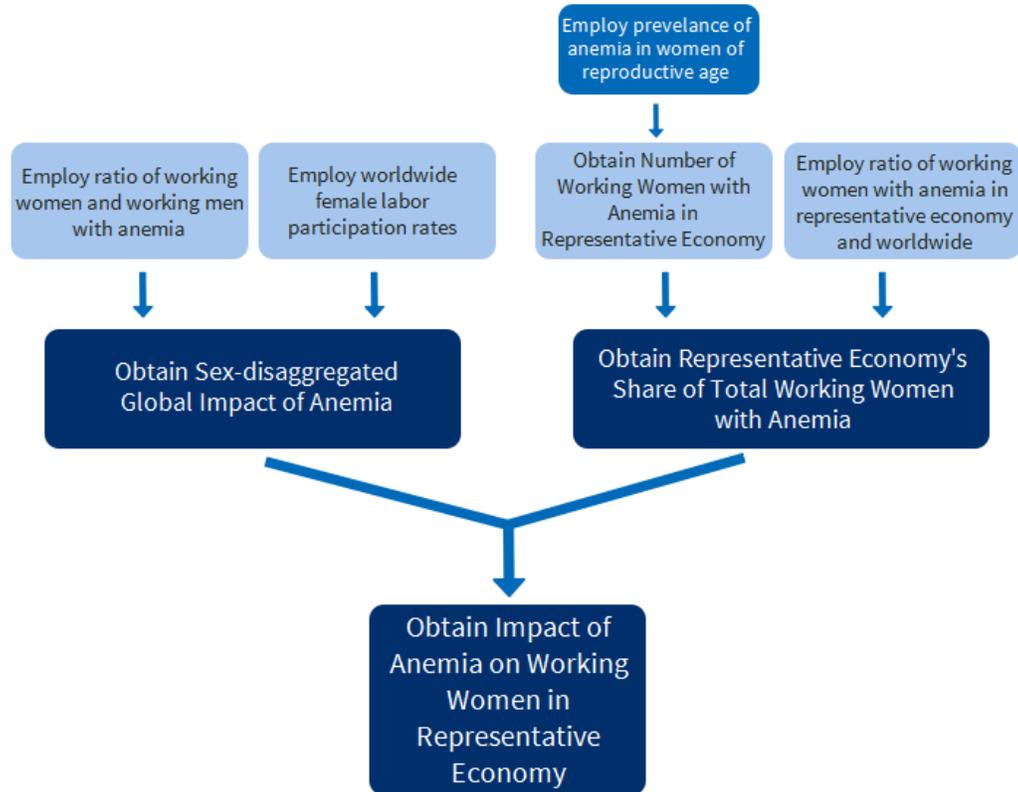
Methodology I

The starting point for this analysis was the data point on the prevalence of anemia in women and men of reproductive age as of 2005: 524 million women and 260 million men. In order to obtain the prevalence of anemia among working women and men globally, the global labor-participation rates were applied to the number of women and men with anemia. To arrive at economy-level figures, the numbers of women in the labor force with anemia in the representative developing and developed APEC economies were calculated using the global estimate and respective economy-specific data on total female population, labor force participation and anemia prevalence.

The World Bank found that iron deficiency anemia (IDA), a specific type of anemia, has a global impact of \$50 billion on GDP due to reduced worker productivity (World Bank 2004). According to a 2008 WHO report, iron deficiency is the leading cause of anemia, accounting for about 50% of all cases (WHO 2008). These two data points were used to estimate the global impact of anemia – both IDA and other types of anemia – to be \$100 billion.

Using the number of working women with anemia and the estimate of \$100 billion total GDP loss due to anemia, the corresponding global economic loss for working women was estimated to be nearly \$56.7 billion, which is nearly \$74.3 billion in 2016 dollars. This represents the maximum worldwide cost that could be saved if anemia among working women is eliminated by improving health awareness and access among women.

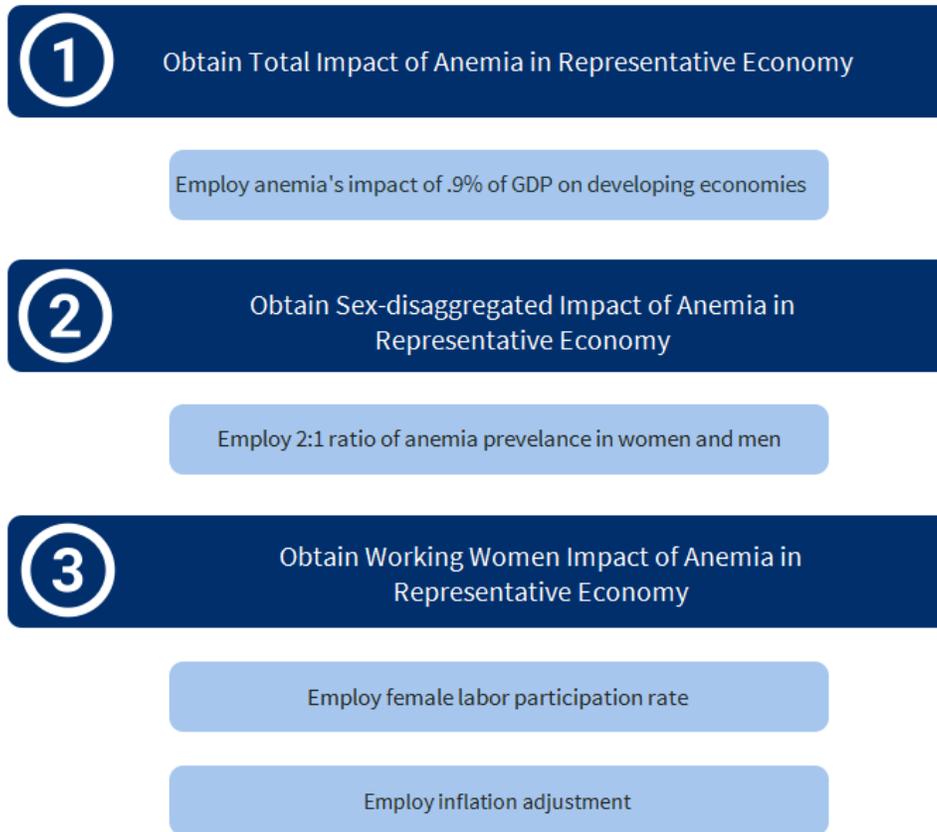
To estimate the corresponding economic impact at the level of the representative developing and developed APEC economies, the share of working women with anemia in the respective representative APEC economies was used along with the total global economic loss attributable to anemia among working women (figure 6-2).

Figure 6-2: Anemia Impact—Methodology I

Methodology 2

MacDonald wrote in 2006: “Anemia creates irreversible cognitive defects, resulting in reduced wage potential. The median cost of anemia worldwide is 0.9% of developing economies’ GDP.” This study was used to arrive at an alternate estimate of loss resulting from working women with anemia. However, as this calculation was made only for the representative developing APEC economy as the referenced study focused on developing economies.

First the cost of anemia in the representative developing economy was calculated using the median cost of anemia to a developing economy of 0.9% of GDP (obtained from the study referenced above), and the latest available GDP (2015) for the representative developing economy. Then the 2:1 ratio of prevalence of anemia among women and men was used along with the overall cost of anemia for the female workforce only (figure 6-3).

Figure 6-3: Anemia Impact—Methodology 2

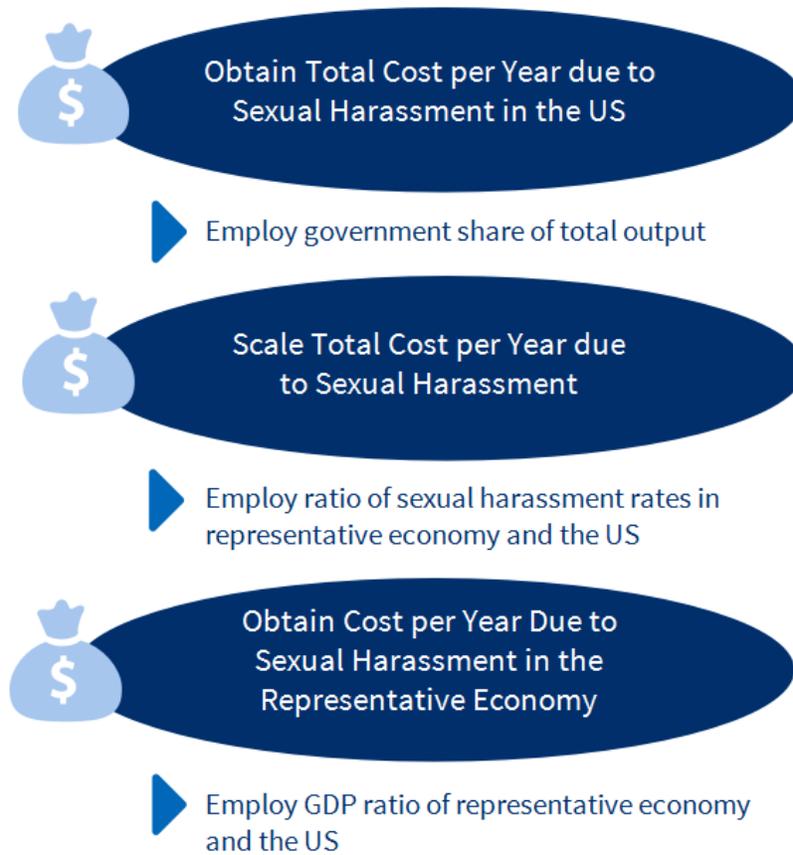
All dollar-based values were converted into current US dollars.

GENDER-BASED VIOLENCE

The prevalence of both sexual harassment and domestic violence in APEC economies, along with the corresponding economic costs, elevates the importance of interventions in this area. Studies from the United States and Peru form the bases for the analysis here.

Sexual Harassment

Workplace sexual harassment is widespread in APEC economies, with rates of 20% in developed economies and 30%-40% in developing economies in Southeast Asia. Prevalence of sexual harassment in each APEC economy is available through government statistical sources, private sector sources, and United Nations sources.

Figure 6-4: Sexual Harassment Impact Method

The analysis here (figure 6-4) starts with a study from the US Merit Systems Protection Board, the agency charged with protecting US federal workers. The board estimated that turnover, sick days, and absenteeism of federal government employees attributable to sexual harassment cost the federal government \$327 million between April 1992 and April 1994. This information comes from a board survey of all US federal employees (1995). The survey had 8,000 male and female respondents and a response rate of 61%. Forty-four percent of women working for the federal government reported being sexually harassed at the workplace. This was an increase in prevalence from surveys in 1980 and 1987. The board said one potential reason for the increase was greater awareness of sexual harassment. Because this study involved data only for the federal workforce, data from the U.S. Bureau of Economic Analysis were used in this report's economic analysis to scale the impact to represent the effects on both federal and non-government employees.

Given the difference in the sexual harassment rates - across the United States and the selected developing and developed economies – this impact was adjusted for the developing and developed economies using the appropriate sexual harassment prevalence rates of 35% and 24% respectively (table 6-3).

These impacts were then scaled down for the two representative economies to account for their smaller GDP in relation to the United States.

Table 6-3: Sexual Harassment Data

Economies	Sexual Harassment Prevalence (%)	GDP (2015) x US\$ trillion	Government Share of Total Output (%)
Developed	20	1.560	
Developing	35	0.272	
US	24	16.77	11.1

Sources: Australian Human Rights Commission; *The Facts: Violence against women and MDG*, compiled by UNIFEM, 2010; Willness et al. 2007; World Bank 2015; U.S. Bureau of Economic Analysis

All dollar-based values were converted into current dollars.

Domestic Violence

Domestic violence causes significant economic losses throughout the world. A UN Women survey found 4% of women in the representative developed economy and 10.3% of women in the developing economy reported experiencing physical violence in the 12 months leading to the survey (2011). These figures probably underrepresent the scale of the problem in each of these economies, as most cases of domestic violence globally go unreported.

Dr. Vara Horna of University of San Martín de Porres conducted a study in 2012 of domestic violence in Peru, estimating a domestic economic impact of \$6.74 billion, representing 3.7% of Peru's GDP. Dr. Vara Horna attributed much of this lost GDP to higher rates of tardiness, diminished performance, and increased turnover. Further, Dr. Vara Horna found that a total of 70 million working days were lost in 2012 in Peru due to domestic violence. The UN reported that 14.2% percent of working women in Peru experienced domestic violence (UN Women 2011). On average, victims experienced four incidences of violence a year (Vara Horna 2013). The rates of domestic violence across specific sectors including services, agriculture, and industry, vary. The impact of domestic violence on of each of these sectors' GDP is highlighted in table 6-4 below.

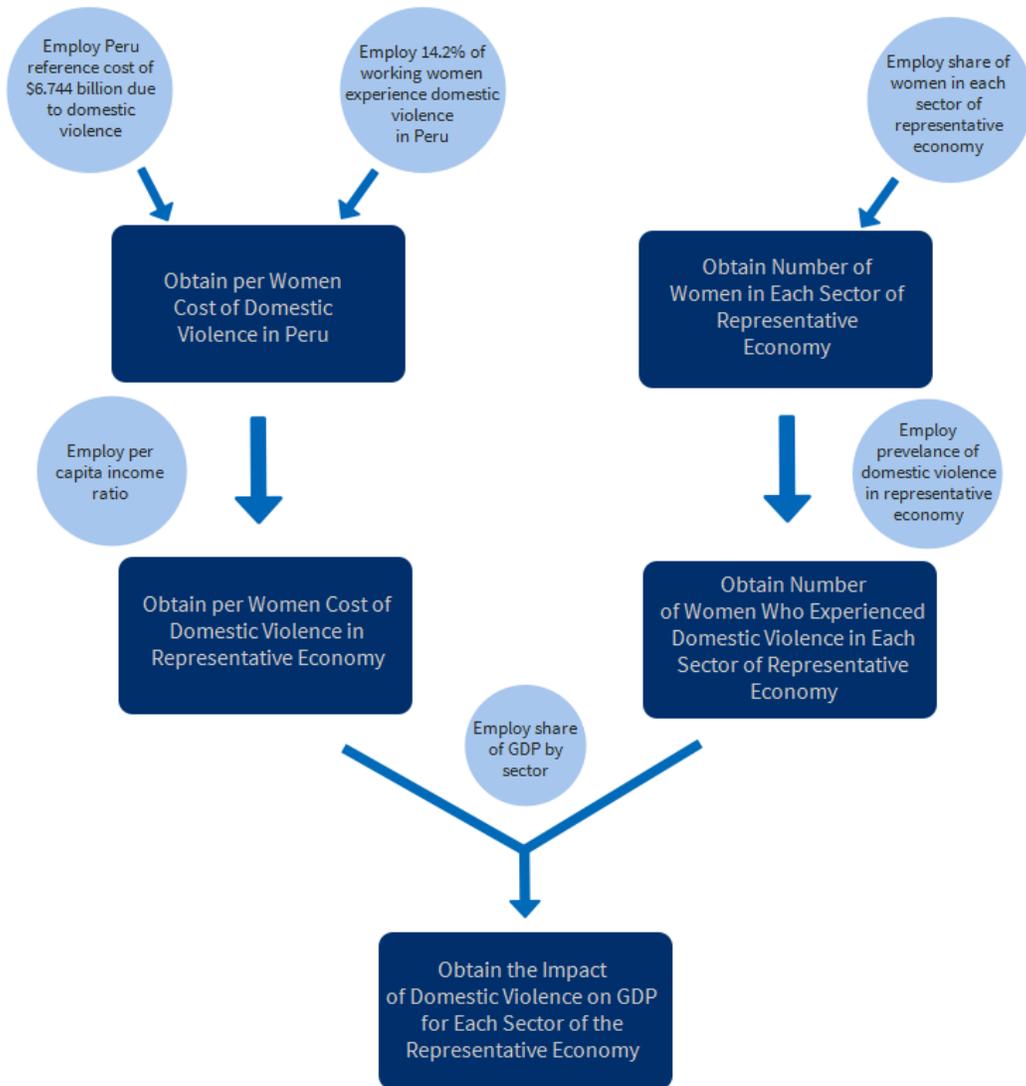
Table 6-4: Domestic Violence Data

Economies	Prevalence of Domestic Violence in Past 12 Months (%)	% of Total Female Employment in Agriculture, and % share of GDP	% of Total Female Employment in Industry, and % Share of GDP	% of Total Female Employment in Services, and % share of GDP	% of Labor Force that is Female	Per Capita Income (US\$)
Developed	4.0	3.0 3.8	10.0 24.7	81.0 68.7	45.4	67,458.36
Developing	10.3	24.0 11.2	12.0 31.6	64.0 57.2	39.2	2,765.00
Peru	14.2					6,662.00

Sources: UN Women 2011; World Bank 2005; World Bank 2005; World Bank 2005; World Bank 2014; Index Mundi 2015

In this analysis, the economic impact of absenteeism caused by domestic violence toward women in the workforce was examined (figure 6-5). The analysis used Dr. Vara Horna's Peru study as the starting point (reference study).

Figure 6-5: Domestic Violence Method



A "unit cost"—an estimate of domestic violence per woman—in Peru was calculated based on this reference study, and using statistics on female labor force participation rate and incidence of domestic violence in Peru. As the reference study covered only industry and services sectors, the calculations were adjusted to ensure that the agriculture sector was not counted in the unit cost, which would have underestimated the cost. This unit cost was calculated to be \$6,713 (2012), based on an incidence of domestic violence of 14.2 percent (UN Women 2011), and a female labor participation rate of 68 percent in Peru.

This unit cost that relates to Peru was converted to the representative developing and developed APEC economies using their relative per capita incomes (relative to Peru). It was assumed that the reference unit cost would apply to the agriculture sector as well. Using the incidence of domestic violence and female labor force participation, the number of women affected by domestic violence in these representative economies was estimated. This was then multiplied by the unit cost to obtain the impact of domestic violence in the representative developed and developing APEC economies.

In order to apportion the economy-wide effects to individual sectors, the shares of women employed in agriculture, industry, and services sectors were utilized (to estimate the number of

women affected by domestic violence in each sector) along with the contribution of each sector to the respective economy were used. The calculations yielded the percentage loss in the contribution of the specific sectors to GDP, attributable to domestic violence. In other words, this represents the economic benefit that would accrue to each of these sectors if domestic violence were eliminated.

All dollar-based values were converted into current dollars.

7. RESULTS & CONCLUSIONS

This report yields results that clearly demonstrate the potential cost savings of implementing measures to address issues related to workplace health and safety, illnesses such as anemia, sexual harassment in the workplace, and domestic violence. While the estimates are based on costs, the economic costs and economic benefits are two sides of the same coin. The economic costs estimated in turn represent the potential cost savings to the economy if injuries in the workplace, insufficient health access and awareness, and gender-based violence can be avoided and remedied completely. It is important to note that there are costs associated with reducing workplace injuries, lack of health awareness, and reducing gender-based violence. It costs time and funding to develop programs and policies, and to implement and enforce them. These costs must be estimated and taken into account in order to gauge the net benefit of adopting these measures. While these costs are unknown, it is reasonable to assume that the benefits of implementing these measures will significantly outweigh the costs based on an understanding of these types of programs and discussion with a variety of stakeholders and implementers. Further, the costs of implementation should be considered against the impacts during the program design phase, to ensure that the outcomes outweigh the costs.

Under workplace health and safety, the effects of female work-related injuries on representative developed and developing economies were examined. The analysis concludes that based on costs arising from occupational injuries among women, the representative developed APEC economy can save up to **\$2.4 billion** or **0.177% of GDP annually**, and the developing APEC economy nearly **\$7.7 million** or **0.003% of GDP annually** in 2016 current dollars, by implementing actions that render workplaces safe for female workers. While the estimates of potential benefits are to be much higher for the developed economy compared with the developing economy, the following factors should be considered, for an informed evaluation of the results:

- **Developed economies are better at keeping statistics and have more reliable data.** The number of work-related injuries for the representative developed economy was 30,850 (ILOSTAT Database), while it was 5,937 (local source) for the developing economy. It is likely that the data for the developing economy underrepresent the actual number of injuries, due to poor data collection and lack of data transparency.
- **Developed economies have laws and regulations in place to ensure better health protection for workers.** The number of days lost due to injury for females for the representative developed economy was 52.8, while it was 8.4 days for the developing economy. In developed economies injured workers can get longer rest periods, while in developing economies workers can risk losing their jobs if they do not return to work soon.
- **Developed economies have higher GDPs, as well as more value added per worker on average due to the composition of their economies.** The unit cost per day lost due to injuries is much higher in developed economies than in developing economies, as explained by the discussion of conversion factors in Section 6. This naturally drives up the costs in developed economies.

As a result, particularly of the first two factors mentioned above, it can safely be assumed that this report's finding for the developing economy underestimates the real cost of female occupational injuries to the economy and hence the potential benefit for making workplaces safer for female workers.

In the health awareness and access area, the effects of anemia on the economy were examined. The findings demonstrate that the benefit of reducing anemia among working women, based on the cost to the economy of working women with anemia, could be up to **\$280 million** or **0.021% of GDP** to the developed APEC economy, and nearly **\$1.2 billion** or **0.423% of GDP** in the developing APEC economy. An alternative methodology yielded a benefit (avoided cost) of up to **\$862 million** for the developing economy when measured in 2016 current dollars. It is clear that costs to developing economies are much higher due to the share of female labor force suffering from anemia. A few possible reasons for this are listed below:

- Poor nutrition and living conditions in developing economies leading to higher prevalence of anemia; 25.4% prevalence in representative developing APEC economy, as opposed to 17.5% in representative developed APEC economy
- Better access to health care due to higher incomes and resources in developed economies
- Availability of higher quality health care in developed economies

In the gender-based violence area, the effects of sexual harassment in the workplace and domestic violence toward women in the workforce were examined. Sexual harassment in the workplace reduces women's productivity. Up to **\$186 million** or **0.014% of GDP** in the representative developed APEC economy, and nearly **\$57 million** or **0.019% of GDP** in the representative developing APEC economy in 2016 current dollars, could be saved if sexual harassment were to stop. It is likely that these estimates are higher in developed economy due to reasons similar to listed in the case of female occupational injuries—lack of reporting such incidents, poor data collection, etc.

Domestic violence toward women in the workforce causes impairment of physical abilities as well as reduction of employee morale, both of which lead to reduced productivity and absenteeism. This analysis concludes that based on total estimated cost associated with domestic violence, the representative developing APEC economy could benefit up to **\$2.7 billion** or **0.948% of GDP** and the developed APEC economy up to **\$13.4 billion** or **1.002% of GDP** measured in 2016 current dollars, if domestic violence and its impact on productivity and absenteeism can be curtailed.

In addition, these estimated benefits (avoided costs) for combating domestic violence can be presented as a percentage loss in contribution to GDP of each major sector in an economy. In the representative developed APEC economy, the cost of domestic violence in the **services** industry creates the biggest loss—**1.08%** of the sectors contribution to GDP. This is followed by agriculture (0.72%), then industry (0.37%). In the representative developing APEC economy, the cost of domestic violence in **agriculture** hurts GDP most, with **2.18%** of GDP forgone. This is followed by services (1.14%) and industry (0.39%). In total, the cost of domestic violence that can be avoided is higher in the developing APEC economy as a share of GDP, **3.71%**, as opposed to the cost of domestic violence that can be avoided in a developed economy as a share of GDP, **2.17%**.

The table below summarizes the potential combined impact of improving women's health in the four areas:

Table 7-1: Final Impact

Estimated Impact of Economy-wide Interventions (in US Dollars and as Percentage of annual GDP)		
	Developed Economy	Developing Economy
Workplace Health & Safety		
Cost savings from safe workplace programs for female workers	\$2.4 billion	\$7.7 million
	0.003%	0.177%
Health Awareness and Access		
Cost savings from reducing anemia in female labor force	\$279.6 million	\$1.2 billion
	0.021%	0.423%
Cost savings from reducing anemia in female labor force (alternate method)		\$861.9 million
Gender-Based Violence		
Cost savings from controlling sexual harassment through workplace programs	\$185.7 million	\$56.7 million
	0.014%	0.019%
Cost savings based on total estimated cost of reduced productivity and increased absenteeism of curbing domestic violence	\$13.4 billion	\$2.8 billion
	1.002%	0.948%
Sectoral output lost due to gender-based violence that can be avoided, as share of total GDP (%)	<ul style="list-style-type: none"> • Agriculture: 0.72 • Industry: 0.37 • Services: 1.08 • TOTAL: 2.17 	<ul style="list-style-type: none"> • Agriculture: 2.18 • Industry: 0.39 • Services: 1.14 • TOTAL: 3.71

The APEC Healthy Women, Healthy Economies Policy Toolkit suggests actions that economies can take to improve women's health and thus improve women's workforce participation. These actions aim to address health issues that cost economies billions of dollars, as demonstrated in this report. With the economic impacts now demonstrated, governments and businesses are armed with more than just social and moral arguments for implementation of changed or new policies and laws. Economies can now employ the measurable impacts – hard numbers – provided in this report to garner resources and political support for change and reform that can impact millions of women across the Asia-Pacific. Additionally, for those economies already in implementation, these impacts serve as a justification and basis for continued and expansive actions. Thus, the evidence is indisputable: economies have the ability to implement measures suggested in the HWHE Policy Toolkit that can save billions of dollars while unleashing women's ability to thrive in the workplace, driving economic growth and prosperity across the Asia-Pacific.

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