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Advancing Free Trade
for Asia-Pacific **Prosperity**

Methodologies Used in APEC Economies for the Measurement and Assessment of Economic Costs of Violence Against Women

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List of Abbreviations

ABS	Australian Bureau of Statistics
ADFA	Australian Department of Foreign Affairs
APEC	Asia-Pacific Economic Cooperation
ComVoMujer	Fighting Violence against Women in Latin America (Combatir la Violencia contra las Mujeres en América Latina)
CDC	Centres for Disease Control and Prevention (USA)
CU	Cost Unit
DALY	Disability-adjusted Life Years
DV	Domestic Violence
GBV	Gender-based Violence
GIZ	German Agency for International Cooperation (Deutsche Gesellschaft für Internationale Zusammenarbeit)
GBV	Gender-based Violence
GRB	Gender Responsive Budgeting
ICRW	International Center for Research on Women
INEI	National Statistics and Information Institute of Peru (Instituto Nacional de Estadística e Informática del Perú)
IPV	Intimate Partner Violence
NCRVAW&C	National Council to Reduce Violence against Women and their Children (Australia)
ODI	Overseas Development Institute
PAF	Population Attributable Fraction
PEAO	Economically adequate employed population (Población Económica Adecuadamente Empleada)
PAF	Population Attributable Fraction
PSM	Propensity Score Matching
SAM	Social Accounting Matrix
SV	Spousal Violence
USA	United States of America
USMP	San Martín de Porres University (Universidad San Martín de Porres)
VAW	Violence against Women
WHO	World Health Organization

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Glossary

Domestic Violence (DV). Domestic or family includes a range of violent behaviours: physical violence, sexual, verbal, psychological and emotional abuse, as well as social isolation and economic or financial abuse (Laing and Bobic, 2002). In the case of some studies that use this concept, the definition is limited to the violent behaviour between adult intimate partners. However, effects on children as witnesses of violent attacks might be considered (Access Economics, 2004).

Incidence. It is an epidemiological concept that refers to the frequency a phenomenon or event which occurs in a specific period of time. In the case of VAW, it is defined as the quantity of violent attacks and aggressions that the women experienced by their partners, during the last year (Vara Horna, 2015).

Gender-based Violence (GBV). “Gender-based violence (GBV) is violence perpetrated against a person on the basis of their gender and as a result of the normative role expectations associated with each gender and the unequal power relationships between genders” (Bloom, 2008). There are three distinct, yet very much overlapping areas of Gender-based violence in which the APEC is working: (a) Sexual Harassment in the Workplace, (b) Vulnerable Female Migrant and Mobile Workers and (c) Intimate Partner Violence (IPV) (World Bank 2014 as cited in APEC/USAID, 2015). The study focuses the latter.

Intimate Partner Violence (IPV). IPV is defined as gender-specific violence directed against women, occurring in the family and interpersonal relationships. These can include partners who do not live together or are not married. Forms of violence include physical, emotional/psychological, sexual, or financial/economic abuse (World Bank 2014 as cited in APEC/USAID, 2015).

Presentism. Means to be present at work although there is a relative working incapacity to carry out the job duties adequately. Presentism reduces the job performance and productivity because the staff is not in optimal conditions of health and well-being. This results in distraction, exhaustion, zero productivity and can have an effect on the increase of labour incidents, damages and accidents (Vara Horna, 2015).

Prevalence. It is an epidemiological concept that refers to the proportion of persons of a population that present a characteristic or particular event in a specific point in time. In the case of VAW, it is defined as the percentage of women who were attacked by their partner. If violent attacks occur in the lifetime of a women, it is defined as lifetime prevalence. If the attacks happen only the last year of the women’s life, it is defined as annual prevalence (Vara Horna, 2015).

Spousal Violence (SV). Current and past relationships of married, common-law, separated, or divorced partners of at least 15 years of age, including both heterosexual and same-sex relationships (Zhang et al., 2012).

Violence against Women (VAW). The term "Violence Against Women"(VAW) means "any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life" (United Nations Declaration on the Elimination of Violence against Women, 85th plenary meeting, December 1993).

However, the study focuses on VAW in intimate partner relationships, which is why the following definition is useful: Violence against women in current or former intimate partner relationships, including each omission or action that due to the unequal power relations is executed with the intention to harm the women and to make them act against their will. These includes psychological, physical, sexual and economic acts of violence (Vara Horna, 2015).

Introduction

The APEC Women and the Economy Forum 2015 Statement: “Women as Prime Movers of Inclusive Growth”, encourages companies, employers, and entrepreneurs, along with governments, to invest in human capital to ensure the physical and mental health, safety, and well-being of all workers, including working to address the unique health and safety challenges faced by women in the workplace. The Statement also call on public and private sector stakeholders to promote and respect gender diversity at all levels of employment, and encourage both sectors to develop mechanisms to collect sex disaggregated data, formulate policies to ensure the achievement of gender equality and women’s empowerment, and provide public transparency regarding actions taken.

In September 2015, APEC Healthy Economic Policy Toolkit was launched. This toolkit offers a one-stop menu of policy options that may be used to pilot, implement, and scale up actions appropriate for specific local economic and social conditions. The toolkit presents in detail issues, actions and implementation strategies for improving women’s health in APEC economies across five categories: workplace health and safety, health access and awareness, work-life balance, sexual and reproductive health, and gender-based violence.

In APEC 2016 Developing Human Capital was a priority. In a highly

competitive global market, this component aims at enabling Asia-Pacific economies to achieve qualitative leaps over the base of science, technology, innovation, and talent. In this sense, it is critical to incorporate the impacts of gender-based violence (GBV), as it erodes present and future human capital formation—a critical input to achieve economic development.

The APEC Women and the Economy 2016 Forum “Breaking Barriers to the Economic Integration of Women in the global Market” acknowledged that gender-based violence is highly prevalent in the economies. It is not only a violation of women’s and girl’s rights, but causes significant economic costs e.g. in the provision of health services and the loss of income. Thus, it further recognized that a better working environment and strategies of gender-based violence prevention would have positive effects on health, productivity and earnings. As a result, the forum encouraged the APEC economies together with the private sector, to take action to disseminate information and facilitate communication campaigns to prevent violence against women. In particular, it recommended the establishment of Public-Private Partnerships to develop and implement violence prevention strategies, in the home, workplace and in public spaces (APEC Forum, 2016).

Gender-based violence (GBV) is defined as “violence perpetrated against a person on the basis of their

gender and as a result of the normative role expectations associated with each gender and the unequal power relationships between genders” (Bloom, 2008, p. 14). The APEC works in three distinct, yet very much overlapping areas of GBV: Sexual harassment in the workplace, vulnerable female migrant and mobile workers and intimate partner violence (APEC, 2015).

There is a range of different definitions when it comes to the concept of violence against women e.g. family violence, domestic violence, spousal violence, gender-based violence, violence against women and violence against women in intimate partner relationships. While they may imply similar ideas, they do in fact contain significant differences. In this study, the focus is put on violence against women in intimate partner relationships, which is often referred to as intimate partner violence (IPV) or like in this case, violence against women (VAW). This concept includes violent attacks by a partner or ex-partner of a present or past intimate relationship from any kind of partner e.g. spouses, boyfriends etc. (Vara Horna, 2013; ICRW, 2009).

VAW is a global pandemic that is not limited to geography and time (Vara Horna et al., 2015). Globally, one of three women suffers from physical and sexual violence caused by her partner (WHO, 2013). It causes a loss of 5.2% of the global GDP, VAW is the most expensive type of violence in the world. It is even more

costly than wars, terrorism, interpersonal violence, child abuse and all types of homicide (Hoeffler and Fearon, 2014). VAW is a violation of the basic human right to live a life free from violence. It is also an acknowledged issue of public health. In fact, VAW is prevalent across high-, middle-, and low-income countries where it causes losses not only to the affected women, but also to their families, the community, governments and businesses (Ashe et al, 2016a).

Although there is an increase in evidence on costs associated with VAW. Concrete policy action to VAW remains a challenge as it is usually not a topic of economic policy deliberations. Neither was VAW acknowledged as a development issue, only in 2015 it has for the first time been included in a global political agenda, namely the 2030 Agenda for Sustainable Development (Raghavendra, Duvvury et al. 2017).

This study is aimed at elaborating on the methodologies used by 6 APEC communities to measure and evaluate the economic costs associated with violence against women (VAW). This is crucial when considering strategies of the public and private sectors to reduce these costs and establish an effective prevention approach for all APEC economies¹. Australia; Canada; Chile; Peru; United States and Viet Nam made progress in this area as they provide methodologies to estimate the costs of VAW.

¹ Objective of the Project “Towards the construction of public and private strategies to re-

duce the costs of violence against women”, established through the APEC and the Ministry of Women and Vulnerable Populations in 2017.

Measuring and evaluating the costs of VAW has clear benefits: (1) It shows the potential benefit of prevention and intervention to society. (2) It can be used to argue for a greater priority in the budgeting of resources. (3) It monitors and evaluates the actions to reduce VAW. (4) It estimates the impacts of VAW not only on the individual, but also to the economy, the government and public services. Generally, it contributes to the awareness and understanding of the magnitude of the problem. (ODI, 2016; Walby, Olive, 2014; Patel, Taylor, 2012, Villagómez, 2010; Walby, 2004). Importantly, estimated costs of VAW have the potential to motivate actors in public and private sectors both on the basis of financial incentives and rights-based arguments (ODI, 2016). However, the monetary amount that is ascribed to VAW is not

comparable to the value of the human right to live a life free from violence.

This study focuses on the costs of VAW in intimate partner relationships. Chapter I provides a theoretic framework that gives an overview of the methodologies that exist in literature to estimate the costs associated with VAW. It further gives an overview on types and cost-bearers of VAW as well as reasonable limitations to the comparableness of the outcomes in the APEC economies. In Chapter II, methodologies and outcomes of the 6 APEC economies will be identified and analyzed with respect to their advantages and limitations. Finally, the study draws conclusions and formulates recommendations to the economies, the private sector and with regard to the creation of public-private partnerships to prevent VAW.

Chapter I: Theoretical Framework

I. Concepts of Violence against Women

As mentioned above, there is a range of different definitions when it comes to the concept of violence against

women. In the following table, the definitions applied by the different costing studies in the 6 APEC economies will be summarized.

Table 1: Concepts of violence against women used by the 6 APEC economies

APEC Economies	Concepts of violence used in costing studies	Costing Studies
Australia	<ul style="list-style-type: none"> • Intimate Partner Violence (IPV) • Domestic violence (DV) (Limitation in the studies: adult intimate partners and effects on children as witnesses) • Violence against women (VAW) • VAW 	<p>Henderson (2000) Access Economics (2004) and (NCRVAW&C, 2009)</p> <p>(PwC et al. 2015) (KPMG, 2016)</p>
Canada	<ul style="list-style-type: none"> • IPV against women • Spousal violence (SV) 	<p>Varcoe et al. (2011) Zhang et al. (2012)</p>
Chile	<ul style="list-style-type: none"> • Domestic violence (DV) 	<p>Morrison and Orlando (1999)</p>
Peru	<ul style="list-style-type: none"> • VAW in partner relationships 	<p>Vara-Horna (2013, 2015, 2016)</p>
United States	<ul style="list-style-type: none"> • IPV limited to rape, physical assault and stalking • VAW • Partner VAW by men 	<p>National Center for Injury Prevention and Control (2003) Max et al. (2004) T. K. Logan et al. (2012)</p>
Viet Nam	<ul style="list-style-type: none"> • DV against women by an intimate partner (IPV) 	<p>Duvvury (2012) and Rhagavendra et al. (2017)</p>

Author's illustration. Definitions are found in the respective chapters.

II. Types of Costs and “Who pays”

It is important to understand the types of economic costs of VAW and who is the cost-bearer. The costs can include direct and indirect cost which can either be monetized (tangible) or not (intangible).

Direct tangible costs comprise the real money spend by individual women on mitigating the impacts or preventing VAW. It is estimated by measuring goods and services used and multiplied by their cost unit.

Direct intangible costs mirror impacts that result from VAW but cannot simply be expressed in monetary terms. The example of pain and suffering illustrates this difficulty.

Indirect tangible costs result indirectly from VAW and involve loss of potential e.g. loss of income due to missed work.

Indirect intangible costs result indirectly from VAW but cannot simply be expressed in monetary terms e.g. second-generation costs like cognitive deficits or mental health problems.

Furthermore, costs can be distinguished by the socioeconomic impact of VAW they cause (cost of inaction) and the costs that arise through implementation of policies to prevent and address violence (cost of action).

Consequently, the costs of VAW have larger effects not only on individuals, but also on households, communities, businesses and the public sector. Table 2 gives an overview and examples on these classifications (UN Women, 2017).

Table 2: Types of costs and “Who pays”

Level	Who pays?	Direct Costs	Indirect Costs	Intangible Costs
Individual	Survivors of IPV, perpetrators, other individuals (family members, peers, neighbours)	Out-of-pocket expenses	Income lost (missed working days), education lost (missed schooldays), household work lost	Suffering, pain, premature mortality, negative psychological effects on survivors, their children and others who witness violence, including older members within the household
Local	Community members (schools, workplaces)	Prevention activities, provision of services	Productivity loss, decrease of workforce quality, reduced labour force participation of women	Human capital loss over the long run
National	Government, nongovernmental organizations (NGOs)	Prevention activities, provision of services, prosecution	Productivity loss	Human capital loss over the long run, impacting on economic growth, social tension and reduced social cohesion
Inter-national	International organizations, NGOs	Prevention activities, provision of services, prosecution		

Source (modified): UN Women, 2017.

III. Methodologies to Measure the Economic Costs of VAW

The impacts of VAW cause significant economic and social costs. However, costs do not only occur for individuals, but also arise at household, business, community and government levels (Duvvury, 2013). In the literature, there are currently 10 alternative approaches to estimate micro- and macroeconomic costs of VAW (Ashe, not dated). However, six of the methodologies were most often applied: (1) Accounting Methodology, (2) Econometric Methodology (3) Propensity Score Matching, (4) Willingness-to-pay method (5) Disability adjusted life years (DALY) (Duvvury, 2013; Williams, 2014) and (6) and Social Accounting Matrix (Raghavendra et al., 2017). The calculation of the costs for VAW is complex and there is no methodology that estimates all costs. Some studies even may apply a mix of the distinct methodologies. In the following, the five most commonly used concepts will be illustrated together with their advantages and limitations.

3.1 Accounting Methodology

The first studies that measured the costs of VAW go back to Friedman and Couper (1987), Shepard and Pence (1988) and Roberts (1988) who investigated the impact of domestic violence on employment and labour performance, applying an accounting methodology (Skaperdas, Soares, Willman & Miller, 2009). This methodology is most commonly used among costing studies. However, studies using the accounting ap-

proach are mainly realized in developed economies, examples of the few studies realized in developing contexts are Duvvury et al. (2012) for Viet Nam, Vara Horna (2012) for Peru and Morrison and Orlando (2005) for Peru, Haiti and Zambia. (Williams, 2014).

Concept. This approach aggregates costs caused by VAW. It is adequate in order to calculate the direct, indirect and opportunity costs to business. In general, this approach focuses on the estimation of services used as a consequence of the impacts of VAW.

Direct costs are thus calculated by ascribing a unit cost to a service (CU) and multiplies it with the frequency to which the service is used (X) (Morrison and Orlando, 2005; Ashe et al., 2016a).

$$(CU1 * X1) + (CU2 * X2) + \dots = \text{Total cost}$$

This information usually comes from statistical sources, for example national or thematic surveys. While health-care costs can be obtained by a survey of medical survey providers, in the case of companies the cost for providing services to employees suffering VAW can directly be calculated (Williams, 2014). The calculated costs can then be summarized across sectors in order to get a number of total costs (Ashe et al., 2016a).

Indirect costs are calculated by determining the incidents that lead to missed paid work. In this way, the total number of days missed by a person can be calculated. Multiplying

this number with the daily wage rate, the monetary cost of missed work can be estimated (CDC, 2003 in Duvvury et al., 2013; Williams, 2014). Direct and indirect costs can refer to the following examples:

Table 3: Direct and Indirect Costs

Direct Costs	Indirect Costs
Health Police and Justice Social Services Business Government	Missed work Loss of Productivity Loss of Business Output Pain and Suffering Education of Children

(Ashe et al., 2016a; Ashe et al., 2016b)

The calculation of the prevalence rate and the incidence rate is crucial in order to use the accounting approach because it provides information on the amount of women suffering VAW and number of incidents per year (Duvvury et al., 2013).

Table 4: Prevalence and Incidence

Prevalence
Number of ever partnered women who have experienced IPV at some point in their lifetimes (Lifetime Prevalence) or in the 12 months preceding the study survey (Current Prevalence).
Incidence
Number of episodes of IPV that occurred among ever partnered women during the 12 months preceding the study survey.

(ICRW, 2009; CDC, 2003)

Advantages. As mentioned above, the accounting approach is used in

the majority of studies. It can be applied by companies without the necessity of using general population surveys and is according to Williams (2014) regarded as the most cost-effective approach.

Limitations. First, an underestimation of social costs of VAW is possible. (Morrison and Orlando, 2004). This occurs because the calculation is based on the initial list of cost categories, that can be determined in an arbitrary way. This is why a comprehensive mapping is critically important for this methodology (Williams, 2014). Second, a variation in the types of costs between studies exists which makes a comparison difficult. These variations may relate to different levels of service provision in the economies, limited access and use of service provision, or lack of information (Duvvury et al., 2004). Finally, there are some general limitations when measuring costs in the economy, e.g. double counting, non-identifiable costs and inconsistent data (Duvvury et al., 2013).

3.2 Econometric Methodology

Econometric techniques were first applied in 1998 in order to measure the impact of domestic violence on the caloric intake of the affected women (Skaperdas, Soares, Willman & Miller, 2009).

Concept. This methodology can also be used to calculate indirect costs by “using a human capital framework to estimate the impact of GBV on women’s labour force participation and earnings” (Williams, 2014). In other words, it compares the reduced earnings of women who suffered

VAW with those who did not (Duvvury et al., 2013). Logistic regression (multiple/binomial) or probit regression is used to measure the costs of VAW. Therefore, instrumental variables linked to violence are required which are next tested for robustness (ibid.). Examples of instrumental variables for violence are:

Table 5: Instrumental Variables for VAW

Instrumental variables for violence
Age
Educational Attainment (Woman and Partner)
Socio-economic Status
Excessive Alcohol Use by the Husband
Experiencing or Witnessing violence as a Child
Conflict Negotiation within the Household

Advantages. There are many studies using this approach. They elaborate the impact of VAW on employment, physical health, mental health, education, children and intra-household bargaining (Ashe et al., 2016a).

Limitations. The main problem is that there is the potential for simultaneity between earnings and violence: earnings can affect the probability of experiencing violence and violence can have an effect on the earnings (Williams 2014, Duvvury et al., 2013; Morrison and Orlando, 2005). Furthermore, the instrumental variables may include violence in childhood (Morrison and Orlando, 2004) and the cases when the husband was under influence of alcohol. Both affect the woman's ability to work and self-esteem. Moreover, the use of a method that includes instrumental variables can cause problems with small samples. (Ashe et al., 2016a).

3.3 Propensity Score Matching

The Propensity Score Matching (PSM) is a comparably recent approach. In 2004, it was first used to estimate the costs of domestic violence in Colombia (Skaperdas, Soares, Willman & Miller, 2009). It is very similar to the econometric methodology described above. However, in contrast to the accounting and the econometric methodology, it is mostly used to calculate non-monetary costs e.g. social and health impacts on affected women (Williams 2014; Duvvury et al., 2004).

Concept. This approach deals with the causality between earnings and the probability of experiencing violence (Duvvury, 2013). It compares outcomes like earnings loss or labour force participation rates of women that suffered VAW to those who did not (Williams 2014; Morrison and Orlando, 2005).

What exactly is the propensity score and how does the PSM work?

Table 6: Propensity Score

Propensity Score
The Propensity Score is a single variable that expresses a range of risk factors and the probability for experiencing violence.

Two groups with a similar propensity score will be matched: (1) individuals exposed to violence and (2) individuals not exposed to violence. A common area emerges where their scores overlap. This is called the region of common support. If there is no overlap, the groups are eliminated from the study. A successful match-

ing allows the comparison of variables like employment of the group exposed to violence and the other group not exposed to violence (Vyas; Heise, 2014).

Advantages. The advantages of this approach are mainly over the econometric approach (Morrison and Orlando, 2004). First, the definition of the instrumental variables is different, as it is no longer observable (age, education) but an indicator under study (estimated probability of experiencing domestic violence). Also, it seems useful to overcome the selection bias in observational studies in case no control group is available (Ashe et al., 2016a).

Limitations. First, a large sample size is needed in order to have significant groups for comparison. It is further focused on outcomes which is why not all cost categories can be estimated (Williams 2014; Duvvury et al., 2013).

3.4 Quality of life losses

In 1999, the methodology to measure the quality of life losses was introduced in order to calculate the costs of partner violence on the basis of homicides, suicides and aggression (Skaperdas, Soares, Willman & Miller, 2009).

Concept. One type within this methodology is the estimation of Disability-Adjusted Life Years (DALY). Here, violence is measured by calculating the loss of future years of disability-free life due to illness, injury or death. Thereby, a scale between 1 (a year of perfect health) and 0 (death) is applied. As an example, if a broken ankle corresponds to a DALY of 0.20,

20% of one-year of healthy life is lost (Zhang, 2012). The higher the number of the scale, the higher is the loss of health. In a final step, the scale has to be transformed into a monetary value, which is why a dollar figure is linked to value a statistical life year (NCRVAW&C, 2009).

Advantages. The impact of VAW on the individual is clearly illustrated as it calculates the load of violence, injuries and diseases (Ashe et al., 2016a). It is adequate for estimating the health burden VAW causes in relation to other health conditions (Williams, 2014).

Limitations. It is however not adequate to calculate costs to business. Moreover, the outcomes do not give information on mortality or morbidity, like lost productivity which is central when looking at the impacts of VAW in businesses. Moreover, this approach is quite complex and a large amount of data is necessary (Morrison and Orlando, 2004). Finally, as the impacts only concentrate on the health sector, and no policy response is included.

3.5 Willingness to pay

This approach is used to determine the monetary amount that an individual or the community is willing to pay in order to have a life free from violence. According to Williams (2014) it also might be transferable to the costs to business (Williams, 2014).

Concept. This approach belongs to the methodology of contingent valuation and is further based on the assumptions of cost-benefit analysis (Morrison and Orlando, 2004).

Advantages. Like the former approach, the willingness to pay method illustrates the impacts of VAW on the individual very clearly.

Limitations. The approach requires a significant amount of data and there is a lack of surveys related to the topic. In addition, there are less developed countries where violence is widely accepted in society. In these cases, the willingness to pay for a violence-free life may not accurately reflect the cost of VAW to society (Duvvury et al., 2004).

3.6 Social Accounting Matrix

Concept. This approach suggests a more theoretical basis to calculate the costs of VAW. It considers the impacts on the whole macroeconomic system with all its economic activities, for example consumption, production and distribution. In other words, it incorporates information of both the macro and meso levels. Multiplier analysis can be modified in order to incorporate these effects.

Advantages. First, a large class of models for economic policy analysis can be covered. Second, the loss of income can be calculated with regard to the circular flow of income between activities, factors and household accounts. Finally, the indirect impact of that loss to other sectors can be derived including both production and consumption.

Limitations. One of the main limitations is that the matrix is based on secondary literature, which has to be disaggregated by gender in order to use it (Ashe et al., 2016a).

3.7 Other Methodologies

As mentioned above, there are other methodologies in literature to calculate the costs of VAW which are used less frequently.

One of them is the methodology of benefit-cost ratio which calculates the benefits and costs of programs that are aimed at increasing gender equality. It includes a macroeconomic perspective which can highlight that gender equality contributes to economic growth. Though, this approach is limited by restricting evidence to micro experimental studies that lack macroeconomic literature on gender issues (Duvvury et al., 2013).

Another methodology calculates the population attributable fraction for costs related to health that result from VAW. Using an econometric technique, the increase in annual medical costs attributable to VAW can be calculated. However, the various impacts on the increase of annual medical costs must be differentiated in order to get more robust fractions (Ashe et al., 2016a).

Economic multipliers indicate effects about the loss to economic growth due to domestic violence by taking into account the structural inter-linkages of macro economy. From this perspective, VAW prevents an economy from achieving its full economic potential. (Raghavendra et al., 2017). But, little research about the calculation of economic multiplier effects has been done.

Finally, gender responsive budgeting analyses the government's budgets

and the planning, execution and reporting, in order to elaborate on the gendered impacts of budgetary decisions. It is widely applied to establish obligations for governments to address VAW and to evaluate the level of resources allocated. Importantly, it

focuses on the entire budget rather than on specific costs of services. Consequently, it is useful to identify gaps in related policies, services and needs for better management of specialized public and private sectors (Ashe et al., 2016a).

IV. Limitations to the Comparableness of Outcomes

The study elaborates on the methodologies of six of the 21 APEC economies regarding the measurement of costs associated to VAW on business. Australia; Canada; Chile; Peru; United States and Viet Nam are the APEC economies with the most progressive experience in the topic of estimating costs of VAW. Apart from those, Papua New Guinea, New Zealand and the Philippines also elaborated on this topic but their efforts do not apply to the focal point of the study. Nevertheless, their studies may provide useful information. When comparing the findings of the six economies it is helpful to consider some aspects first.

4.1 Definitions and Forms of Violence

As mentioned in the introduction, there is a wide range of definitions used for violence against women both in international literature and in the costing studies of the six APEC economies. Besides, the studies differ in how far they include the different forms of VAW: physical, psychological, sexual and economic. Most of the studies, as for instance the WHO report of 2013, only consider physical and sexual violence which is

why the total cost of VAW could easily be sub estimated (WHO, 2013).

4.2 APEC Economies Classification

The economies examined in this study belong to three different groups regarding the World Bank Country Classification of 2016: High-income (Australia; Canada; Chile; United States), upper middle-income (Peru) and lower middle-income (Viet Nam). VAW is predominant in all classifications and throughout developing and developed country contexts. As Ashe et al. (2016) pointed out, the vast majority of costing studies concern high-income countries. Costing studies in developing country contexts have appeared more recently and make comparison even more difficult due to different levels of service provision, unavailability of data, and less robust data.

4.3 Cost Classification

When measuring the costs of VAW, the economies applied different categories. It is important to keep that in mind in order to understand the variations in the outcomes of the costing studies, as illustrated in Figure 1. As

previously mentioned, the accounting approach provides direct and indirect costs associated to VAW. Throughout the costing studies, the majority treat either direct *or* indirect costs (narrow cost studies) or direct *and* indirect costs (broad cost studies). Only a small minority are full costing studies, which additionally cover costs to the individuals, communities, businesses, and governments and were so far only undertaken by high-income countries. Moreover, it seems that countries of the global north are more focused on costs for service provision or welfare payment (called cost of solution) while countries of the global south

4.4 Outcomes

Figure 1 illustrates the outcomes of calculations of the costs of VAW in the 6 APEC economies under study. As mentioned in the previous section, the numbers are not directly comparable due to different definitions and cost classifications. That is

tend to focus on the impact on work and productivity (called cost of inaction). These are crucial limitations to the comparableness of the costing studies in developed country and developing country contexts (Ashe et al., 2016). Regarding narrow, broad and even full costing studies, it has to be mentioned that the danger of underestimating the full economic cost is predominant. For example, the elaborated approaches only provide an aggregate estimate of the loss of income as they not reflect complex interlinkages in the economy and related multiplier effects (Raghavendra et al., 2016)

why the currencies of Canada and Australia have not been changed, as it would distort the outcomes and does not contribute to the comparableness of the outcomes.

Figure 1: Outcome



Author's illustration. Number sources: Access Economics, 2004; Ashe et al., 2016; Duvvury et al., 2013; Max et al., 2004; Morrison and Orlando 1999, Vara Horna, 2015; Zhang et al., 2012

Chapter II: Estimating the Costs of VAW in 6 APEC Economies

The summary table provides information on the methodologies to calculate the costs of VAW in the APEC economies under study. It focuses on more recent comprehensive studies

(after 2000) carried out by academia, the private sector and partly the public sector, the cost categories used and the instruments applied.

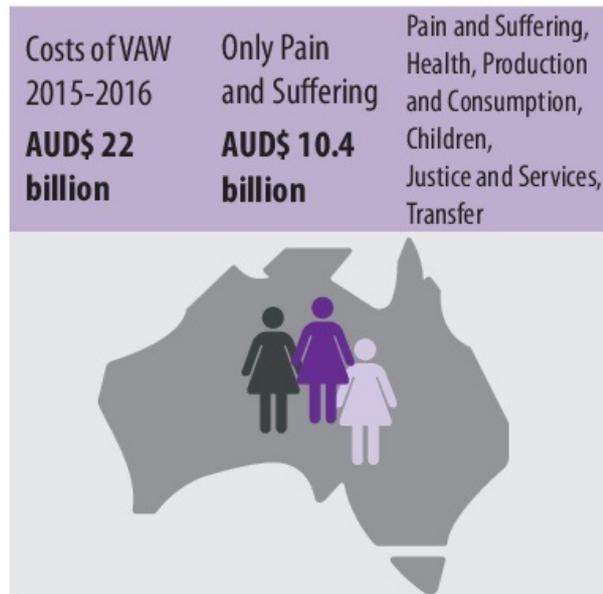
Table 7: Summary Table: Methodologies Identified in 6 APEC Economies

APEC	Methodology	Cost Studies	Cost Categories	Instruments
Australia	Accounting	Henderson, 2000.	Direct Indirect Opportunity Shared Impact	Previous research findings, Consultations with individuals and organizations.
	Accounting	Access Economics, 2004.	Direct Indirect	ABS Women's Safety Survey, 1996. Prior research findings.
	Accounting	NCRVAW&C, 2009.	Direct Indirect	ABS Personal Safety Survey, 2005. Prior research findings.
	Accounting	PwC, 2015.	Direct Indirect Opportunity	ABS Personal Safety Survey, 2012. Prior research findings.
	Accounting	KPMG, 2016.	Direct Indirect	ABS Personal Safety Survey, 2012. Prior research findings.
Canada	Accounting	Varcoe et al., 2011	Direct Indirect	Sample of 30 women (19-65) who left abusive male partners 20 months ago. Structured interviews.
	Accounting	Zhang et al., 2012.	Direct Indirect	Reported incidents of violent attacks in 2009.
Chile	Econometric	Morrison and Orlando, 1999	Indirect	Survey sample of 310 women in Santiago and 378 women in Managua.

APEC	Methodology	Cost Studies	Cost Categories	Instruments
Peru	Accounting	Vara Horna, 2013.	Indirect costs to business	Surveyed 1.309 employees and 1881 workers in 211 businesses. 208 managers interviewed.
	Econometric	Vara Horna, 2015.	Opportunity Costs, Out-of-Pocket Costs	357 owners in 10 cities were surveyed.
	Accounting, Propensity; Score Matching (PSM)	Vara Horna, 2016.	Indirect costs to business	19.333 employees were surveyed in 270 businesses in Bolivia, Paraguay and Peru.
United States	Accounting	National Center for Injury Prevention and Control, 2003.	Direct Indirect	National VAW Survey (NVAWS), 1996. Medical Expenditure Panel Survey (MEPS), 1996.
	Accounting	Max et al., 2004.	Direct Indirect	National VAW Survey (NVAWS), 1996. Medical Expenditure Panel Survey (MEPS), 1996.
	Accounting	T. K. Logan et al., 2012.	Direct	Interviews with 213 women who obtained a protective order against a male abusive partner.
Viet Nam	Accounting; Econometric	Duvvury et al. 2012.	Indirect costs, Out-of-Pocket Costs	1,053 women were surveyed across both urban and rural regions.
	Social Accounting Matrix (SAM)	Raghavendra, Duvvury, Ashe, 2017.	Macroeconomic costs	Social Accounting Matrix, Previous research (Duvvury et al., 2012), SAM 2011.

I. Australia

Pioneer in Calculating Costs to VAW and to Business



Author's illustration. Information Source: KPMG, 2016.

Summary. Australia was one of the first economies to calculate the economic costs of VAW (Vara Horna, 2013). In the 89s and mid 90's, there were five state/territory based studies undertaken in the states of Queensland (Roberts, 1988 and Blumel et al., 1993), New South Wales (Distaff Associates 1991), Tasmania (KPMG Management Consulting, 1994) and Northern Territory (KPMG Management Consulting, 1996). In these early studies, samples of women were interviewed about their experiences with VAW and services used. These studies can be identified as aggregate studies, because they include the number of women affected of VAW and the number, frequency and costs of services used. The costs were calculated for the sample and then extrapolated in order to estimate the annual cost for the retrospective state. The limitations of these studies lie mainly in the fact that the small size of the samples was un

representative, and there were problems in the extrapolation to the full population of the states, especially for indirect costs (Laing and Bobic, 2002). An important step therefore was the more recent national study (Henderson, 2000) that calculated the annual costs of domestic violence to the business/corporate sector. In fact, Australia provides a lot of recent comprehensive cost studies on domestic level. A selection of recent and most influential studies (Henderson 2000, Access Economics 2004, NCRVAW&C, 2009, PWC, 2015, KPMG, 2016) will be analysed with regard to their methodology.

What is special about the Australian case is that with the support of the public sector, a study on VAW in Papua New Guinea was realized. This is especially relevant because (1), the study is a practical tool to calculate costs to businesses and (2), it is an example of international cooperation between APEC economies.

Comprehensive Studies on Domestic Level

Results of Five Comprehensive Studies

Results. The first national comprehensive study was carried out by Henderson in 2000. He considers the cost estimations of the earlier studies mentioned above and calculates the annual cost of domestic violence to Australian employers. The annual cost of domestic violence to the business/corporate sector was estimated to be AUD\$ 1.5 billion (Henderson, 2000).

A comprehensive national study on the costs of DV in 2004 suggests that the annual cost of IPV is AUS\$ 8.1 billion (Access Economics, 2004).

A subsequent national study of the Australian National Council to Reduce Violence Against Women and their Children estimated the total cost of VAW to be AUD\$ 13.6 billion in 2009. If no action would be taken, this cost would increase to AUD\$ 15.6 billion by 2021-22 (NCRVAW&C, 2009).

In 2015, a study by PwC estimated VAW is estimated to cost Australia \$21.7 billion a year. The study confirms that victims bear the majority of this cost. Governments (national and State and Territory) bear the second biggest cost burden, estimated at \$7.8 billion a year, including health, administration and social welfare costs. If no further action is taken to prevent violence against women, the estimated costs will in

crease to \$323.4 billion over a thirty-year period from 2014-15 to 2044-45 (PwC et al. 2015).

The most recent costing study (KPMG, 2016) calculated the total cost of VAW and the effects on the children to be AUD\$ 22 billion in 2015-16. The most significant share of that cost derives from pain, suffering and premature mortality, which is estimated to be AUD\$ 10.4 billion. It also estimated the production related costs resulting from absenteeism and the inability to perform household chores to be AUD \$ 860 for the victims and AUD \$443 for the perpetrators, plus an additional management cost of AUD\$ 96 million (KPMG, 2016).

Pioneer Study on Costs to Business

In **Henderson's study (2000)** on costs of domestic violence on women's participation in the workforce the accounting methodology is used. It provides a synthesis of qualitative and quantitative costs associated with employment of the former five state/territory based studies and estimated the annual cost of domestic violence to Australian employers.

Methodology. The impacts of DV were categorized into four areas:

- Direct costs to employers from absenteeism, staff turnover and lost productivity;
- Indirect costs defined as employer tax share of public sector costs in the provision of services to victims and perpetrators of DV;
- Direct and opportunity costs to victims, perpetrators, family and friends; and
- Shared impact of DV on the wider community, including intergenerational costs.

The study found that the direct costs to employers have an effect not only on the individual but also the company e.g. on distribution and production. This can result in late deliveries, customer dissatisfaction which may finally lead to lost business. Also, the costs to the individual have effects on other sectors of the society e.g. lost earnings of the victim can lead to lost profits for business and decreased tax revenue for the public sector. The study focused on the potential costs to employers, the costs of pain and suffering as well as second-generation costs were not considered (Laing and Bobic, 2002).

Elaborated Methodology

Access Economics (2004) estimated the cost of DV to the Australian Economy in 2004. The objective of the study is to calculate the economic costs of DV. Using a prevalence approach, the study attempted to calculate all annual costs of DV and its consequences. It overcomes the limitations of the Henderson study by including costs attributable to past victims of DV, a full measure-

ment of economic costs of pain, suffering and premature mortality, and associated health costs.

Methodology. In general, the accounting methodology is used to establish direct cost of service provision (Greaves et al., 1995; Access Economics, 2004). In this study, a utilization rate of services e.g. health, police and court is determined and the cost unit of service provision calculated. These include capital cost, salary cost and raw material cost and applies a national prevalence rate to get costs for each service (Duvvury, 2012). The study further applies the methodologies of DALY in order to estimate the costs for pain, suffering and premature mortality and the associated health costs.

Type of violence. The study uses the definition of domestic violence (DV). It is limited to violence between adult intimate partners but considers effects on children that witnessed violent acts.

Design of the study. The study attempts to estimate the economic costs of DV for seven cost categories and eight groups of cost-bearers. That allows the isolation of the different impacts on the various groups affected by DV including the public sector, the business sector, and community groups. To understand how the costs are shared it is important to make informed decisions regarding interventions.

Cost Classification. The study divides the economic costs into two types of costs:

- Direct costs associated with the provision of a range of facilities,

- and services to woman that experienced DV;
- Indirect costs e.g. from replacing lost or damaged household items, changing house or schools, the settlement of a former partner's debts and the impact on workplace participation.

There were additional considerations made with regard to: Real costs e.g. administrative and efficiency costs of funding and transfer costs; Economic and non-economic costs; Prevention and case costs (preventing costs like insurance premiums are excluded); Short-run and long-run costs.

The costs were then allocated to seven cost categories:

- Pain, suffering, premature mortality;
- Health costs;
- Production related costs;
- Consumption related costs;
- Second generation costs;
- Administrative and other costs;
- Transfer costs.

Classification by “Who pays”:
Cost-bearers are:

- The victim;
- Perpetrator;
- Children;
- Friends and family;
- Employer;
- State/territory and local government;
- Rest of the community/society (non-government).

In order to calculate each cost element for each group, two approaches need to be considered: (1) “Top-down: The data may provide the total costs of a program element (e.g.

spending under the Crisis Accommodation Program on people affected by DV); or (2) Bottom-up: The data may provide estimates of the number of cases in the category (‘n’) and the average cost for that category. The product is the total cost (e.g. the wage rate for lost earnings multiplied by the average number of days off, and the number of women to whom this applies)” (Access Economics, 2004).

Costs over time. The outcomes will include the calculation of the annual costs of DV (for victims, perpetrators and children witnessing DV) as well as an estimation of the whole life cycle costs of DV (for each affected person’s life, translated into an average rate per year per woman, child, man and family unit affected) and a total whole of life cycle figure for all affected persons and the economy as a whole.

Prevalence approach. The authors argue that for a clear differentiation between annual and lifetime costs, as well as the data available and the nature of violent relationships, the application of a prevalence approach is favourable.

Data. Surveys are key data for this study and their design also supports the choice of the prevalence approach. One of the main sources (ABS 4128.0 Women’s Safety Survey, 1996) e.g. asked among other things:

- ‘Have you experienced violence in the last twelve months?’;
- ‘Have you ever experienced violence? — by when the last incident occurred (1 to 5 years, 5 to 10 years, 10 years or more’

It provides further information on possible short-term impacts of the last incident, and about the woman's socio-economic characteristics.

Calculation. The annual cost is thus calculated by relying on the information of short-term impacts of recent violent incidents. Using regression analysis, current impacts of past violence incidents can be estimated by ascertaining the difference past experiences of violence may have e.g. on current employment and earnings. These are then enriched with calculations of total impacts in a whole year e.g. with information from government budget data. A prevalence-based estimation of the annual cost of DV can then succeed.

Subsequent Studies

Methodology. The methodology used by the study of the National Council to Reduce Violence against Women and their Children (NCRVAW&C, 2009) mostly adopts the same approach as that taken by Access Economics in 2004. However, the scope of investigation and calculations of the previous study exceed the ones of this study. The objective of this study is "to provide decision-makers with a sense of the scale of this problem and its impact on society, in order to provide another perspective on the need and benefits of intervention" (NCRVAW&C, 2009).

Type of violence. This study is based on the concept of violence against women and their children.

Cost Categories. Cost-bearers were classified into eight groups within society:

- victims/survivors;
- perpetrators;
- children;
- friends and family;
- employers;
- federal, state/territory and local government; and
- the rest of the community/society (non-government).

The costs were then calculated for the following cost categories:

- pain, suffering and premature mortality costs associated with the victims'/survivor's experience of violence;
- health costs include public and private health system costs associated with treating the effects of violence against women;
- production-related costs, including the cost of being absent from work, and employer administrative costs (for example, employee replacement);
- consumption-related costs, including replacing damaged property, defaulting on bad debts, and the costs of moving;
- second generation costs are the costs of children witnessing and living with violence, including child protection services and increased juvenile and adult crime;
- administrative and other costs, including police, incarceration, court system costs, counselling, and violence prevention programs; and
- transfer costs, which are the inefficiencies associated with the payment of government benefits.

Data. Relevant data originated from the ABS Personal Safety Survey (2005) which is the most up-to-date prevalence estimates of people who experience violence and harassment (NCRVAW&C, 2009).

PwC (2015). The objective of the study is to provide further evidence of the costs of VAW as well as the benefits of investing in primary prevention. It shows that the costs of VAW remain high and are still increasing. However, there are significant potential cost savings and other economic and social benefits to be gained from primary prevention strategies that address gender inequality. In case a similar reduction in VAW were achieved as has been the case for other community mobilisation programs, benefits would reach \$35.6 million to \$71.1 million over a lifetime.

Type of violence. The study is based on the concept of VAW, in terms of physical violence including sexual violence and harassment, economic violence, emotional and psychological violence.

Cost-benefit analysis. In order to estimate the benefits of preventing VAW, the study applies a cost-benefit analysis approach where the economic cost associated with VAW is calculated and the benefit is measured by the degree to which that cost is avoided. The accounting methodology is quite similar to previous studies (Access Economics, 2004). However, the study provides (1) re-calculations using up to date prevalence statistics from the PSS and other data; and (2) the escalation of

previously reported costs to thirty years from 2014-15.

Data. Data comes from the ABS Personal Safety Survey (2012) (PwC, 2015).

KPMG (2016). The estimates of this study are consistent with the outcomes of a previous study by KPMG in 2009.

Types of violence. However, the study of 2009 referred only to physical and sexual violence. The increase in the cost of violence between KPMG's 2009 (AUD\$ 13.6 billion) and 2016 reports (AUD\$ 22 billion) can be explained by the expanded definition of emotional abuse and stalking captured within the Personal Safety Survey of 2012.

Cost categories. The costs were calculated in seven cost categories:

- Economic and non-economic impact of pain and suffering;
- Impacts of violence on the health system;
- Production and consumption;
- Children;
- The justice and service system; and
- Transfer payments.

Other findings. In the study, it is clearly emphasized that the calculations are conservative in nature, due to the underrepresentation of vulnerable women in the PSS, which is a clear limitation of the secondary data. An additional cost of AUD\$ 4 billion was estimated if indigenous, pregnant, homeless women and women with disabilities would have been included (KPMG, 2016).

Cooperation with Papua New Guinea: Practical Toolkit for Companies

The study by Darko et al. (2013) focuses on costs to business, which is as mentioned above an area that had little consideration given so far in international literature. It will be worth adding the results and methodologies to the findings we got from the Peruvian studies on costs to businesses as this study provides a pilot practical tool for calculating costs to businesses in Papua New Guinea.

Results. The study revealed that in Papua New Guinea 68% of the employees participating in the study experienced gender-based violence in the last 12 months, 47% experienced more severe forms. These percentages are equivalent to an average number of 7.8 incidents of gender-based violence in the past 12 months, from that 2.4 incidents were of a severe nature. From that result 11.1 days of work lost per employee per year, 2.0 days from presentism, 5.0 days from absenteeism and 4.1 days from people assisting affected women. In total, these are 26 2000 days and 300 000 kina (USD\$ 91 841) lost per year.

Methodology. The study follows an accounting methodology. It is constructed like a practical tool for calculating the impacts of gender-based violence at firm-level in Papua New Guinea. It analyses the costs for two cases, one at business level and one at domestic level, in an international firm.

Definition. In contrast to the earlier mentioned studies, this study does not refer to VAW (for definition see theoretical framework) but to gender-

based violence, which is a broader definition. Results will therefore cover broader costs to business than in the cases before. The definition used in the study refers to the actions or attempts of rape, sexual assault, forced marriage, denial of and psychological or emotional abuse. Basically, gender-based violence means any form of violence on the basis of gender inequality.

Cost Categories. Because the purpose of the study is to provide a practical tool for calculating costs to business, cost categories were chosen with regard to the possibility of data collection and the calculation process. The costs include three categories:

1. Staff time lost due to gender-based violence of affected and supporting personnel, including productivity, absenteeism and assistance affects;
2. Costs for trainings and services e.g. phonedlines, counselling, health care;
3. Indirect costs in terms of resource costs of staff turnover and recruitment.

Also, companies have been analysed with regard to their provision of available services.

Calculation. The reason for applying the accounting methodology for calculation of costs to businesses is that it can easily be applied by the company itself. It uses company-specific costs like investment in prevention as well as time-based and performance

costs like absenteeism and productivity costs. The study calculates:

Direct cost to business:

1. Absenteeism, presentism and assistance
2. Service provision
3. Support to access and other services

Indirect Costs:

1. Additional hours for staff to deal with absenteeism difficulties and
2. Staff turnover and recruitment

Data and Instruments. The sources of information were elaborated through desk-based analysis of given information and firm visits, prevalence surveys of staff samples, and semi-structured interviews with staff of management, finance and human.

In order to collect the data, the prevalence survey tool was used focusing on absenteeism, presentism and assistance. It is based on a survey instrument by Vara Horna (2012) used in Peru, mentioned above.

Difficulties. Challenges in the practical approach of that study arose in the timely and complete provision of the data by the companies, and the sensitivity of financial and commercial information.

Research ethics. The ‘do no harm’ approach, duty of care, risk transfer and referral structures were carried out during all research phases of the study (Darko, Smith, Walker, 2015).

Advantages	Limitations
<p>Practical toolkit to calculate the costs of gender-based violence for businesses.</p> <p>Analyses support services by businesses.</p> <p>Applies widely acknowledged accounting methodology.</p> <p>Uses elaborated instruments of surveys in Peru (Vara Horna, 2012).</p>	<p>Broader definition includes more incidents but may make results more unspecific.</p> <p>Costs of the impacts on perpetrators are not included, like presentism and absenteeism. In Peru, these were a significant part of total costs.</p> <p>Impact of reduced staff productivity on firm performance is not included.</p> <p>Depression or anxiety caused by gender-based violence are not included if they did not directly relate to a particular incident.</p>

PNG Coalition for Woman

The PNG Business Coalition is a striking example of cooperation between APEC economies in terms of facing the costs of VAW to businesses. The Australian Department of Foreign Affairs (DFAT) together with the ODI initiated through the DFAT-ODI Business Development Exchange programme the process to address and do research on the issue of costs to business due to VAW.

Established in 2014, the coalition counts with 45 member companies to drive positive change for women and

businesses in Papua New Guinea. It focuses on four areas of action:

1. Addressing gender-based violence and supporting staff who experiences VAW
2. Developing gender smart workplace policies and practices
3. Promoting career development of women in leadership
4. Expanding opportunities for women in supplier and distribution networks

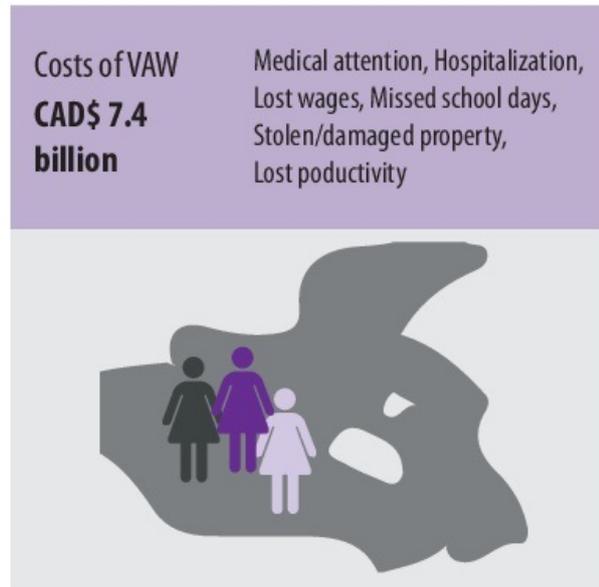
With regard to VAW, the coalition developed the following strategies (ODI, 2015):

Table 8: Best Practice PNG: Strategies for Businesses to Prevent VAW

Strategies for Businesses
Human Policy, including guidelines on Safety Planning, Special Leave, Support Services, Addressing Perpetrators on Staff, Confidentiality for Victims etc.
Policy Implementation Guidelines Step-by-step training Programmes and Consulting Services on How to Implement the Policy
Legal Guide on Family and Sexual Violence for PNG employers

II. Canada

Costs to Justice, Health, Education and Lost Productivity



Author's illustration.
Information Source: Zhang et al., 2012.

Summary of early studies. One of the early studies on the domestic level estimating the costs of VAW in partner relationships was published by Greaves et al. (1995). The study was based on a sample of 12,300 women and used secondary data on prior research results, statistics of the public sector and expert opinions. The costs of VAW were calculated to the individual (lost earnings and unpaid work, accommodation, relocation, self-defence) and the government (e.g. lost tax revenues, courts, incarceration, police, legal aid, victim compensation, medical, shelters, counselling, public awareness). The total annual cost to abused women and government agencies in Canada is more than CDN\$ 4.2 billion (Duvvury, 2013).

In the same year, Day (1995) estimated the costs of VAW. Here, data surveys on VAW, provincial health and crime victimization were used as well as publications of the national statistical agency, government

budgets and other research results. The calculation focused on short- and long-term costs e.g. medical, dental, lost time at paid and unpaid work, psychiatry, drug and alcohol abuse, shelters, crisis lines, volunteer time, government support services. As a result, the total annual cost was calculated to be CDN\$ 1.5 billion (Day et al., 1995).

A third early study (Kerr and McClean, 1996) estimated, based on the concept of IPV, a total cost of CDN\$ 385 million based on violence against women surveys, provincial government ministry budgets and a national crime survey. In this case, cost categories were e.g. policing, corrections, compensation, social programs for victims and perpetrators, mental health, alcohol and drug treatment, shelters, loss of paid and unpaid worktime (Duvvury, 2013).

Long-term Consequences after Leaving

Recent Studies Results. In 2011, Varcoe et al. estimated the total annual cost of IPV to be CAD\$ 6.9 billion. Almost 50% of that cost, CAD\$ 3.1, is attributable to women who have experienced violence in the past three years. The study focused on women who left their abusive male partners 20 months previously. The findings are an important contribution to long-term consequences of violence against women, as results show clearly that the costs continue long after leaving, which should be acknowledged in policy (Varcoe et al., 2011).

One year later, Zhang et al. (2012) proposed the calculation of the costs of spousal violence (SV) in Canada in 2009. It was the first study to provide a comprehensive estimation of the economic impact of SV, which has acknowledged impacts on the victim, its family, friends and colleagues. The total cost of spousal violence was calculated at CAD\$ 7.4 billion. This included medical attention, hospitalization, lost wages, missed school days and stolen or damaged property. The economic impact on third parties is significantly high. CAD\$ 889.9 million were caused by funeral expenses, loss of affection to family members costs of others hurt or threatened during the violent incidents, social services operating costs, employer loss negative impact on children and other government expenditures. Ultimately, the costs to the justice system were estimated to be CAD\$ 545.2 million. These costs referred specially to policing services, courts, prosecutions,

legal assistance, child protection, civil protection orders, separation and divorces (Zhang et al. 2012).

Methodology. As mentioned above, the accounting methodology is generally used to establish direct cost of service provision (Greaves et al., 1995; Access Economics, 2004).

Types of violence. The study of Varcoe et al. is based on IPV while the study of Zhang et al. deals with spousal violence. The latter refers to current and past relationships of married, common-law, separated, or divorced partners of at least 15 years of age, including both heterosexual and same-sex relationships.

Sample. For the study of Varcoe et al., the calculations were based on a sample of 309 women from 19-65 years of age. The data was collected from 2004 to 2005 using structured interviews. The women were asked only about services they had used in the previous month (Varcoe et al., 2011).

Data. In order to calculate the costs of SV in 2009, all incidents of this year were reported considering a wide range of attacks: offences defined by the Criminal Code such as homicide, sexual assault, assault, robbery, and criminal harassment and violent acts listed in the GSS such as being threatened, pushed, grabbed, beaten, choked, threatened with a gun or knife, or forced into sexual activity (Zhang et al., 2012).

Cost categories. The study of Varcoe et al. 2011, includes a comprehensive range of cost categories to calculate both public and private costs of violence. Thereby, the focus

lies on health-related costs. The cost categories comprise the following information:

- Women's self-reports of health, legal and social service use;
- Lost wages and days of school because of health problems;
- Transportation and day care required to access services.

The costs also consider cost that are directly attributable to violence e.g. abuse/help lines, sexual assault/rape crisis services, shelters, second stage housing, advocacy/counselling for violence, and victims' services and costs partially attributable to violence e.g. legal aid, social assistance, unemployment insurance, addiction counselling, and visits to a child protection worker, calls to the police (Varcoe et al., 2011).

The study of Zhang et al. covers all costs attributed to the reported incidents of 2009, including:

- short-term costs;
- long-term costs;
- tangible costs;
- intangible costs.

The economic impact of these costs was categorized into three cost categories. Costs of SV to:

- the individual;
- the justice system;
- third-party costs.

Due to data unavailability and the limitations of existing data in many areas of research, it is reasonable to

suggest that the estimate of \$7.4 billion is a conservative estimate (Zhang et al., 2012).

Impacts of DV in the Workplace

Further contribution to the topic of the impacts of DV in the workplace, which is still little researched area, is the recent study of Wathen et al. (2015).

It was based on an online survey with 8429 participants. The study found that more than a third of the participants reported experiencing DV. More than a third among them feel affected in their ability to go to work and most reported that DV has negative impacts on their work.

However, being in employment is a crucial pathway for women to leave violent relationships because it provides them e.g. with financial security. On the other hand, women having experienced DV had usually to change jobs more often or are employed in part time work and have consequently a lower income than women who do not. Finally, DV limits women in their ability to get to work and can lead to time off and job loss.

The study questionnaire was adapted from an Australian study (McFerran et al., 2011). It focused on the prevalence and impact of DV, while referring to the before mentioned studies when it comes to the cost estimations (Wathen et al., 2015).

III. Chile

Calculating Lost Earnings



Information Source: Morrison and Orlando, 1999.

Summary. An early study by Morrison and Orlando, conducted by the Inter-American Development Bank was calculating the impact of earning capacity in Chile and Nicaragua in 1999.

Results. It was found that domestic violence had significant effects on women's earnings in Santiago de Chile. 40% of the women from 15 to 29 years of age have experienced domestic violence. In particular, women that suffered severe physical violence earned only 39% as women who did not. Altogether, all types of domestic violence reduced women's earnings by USD\$ 1.56 billion in Chile. In Nicaragua, women's earnings were reduced by USD\$ 2.96 million. (Morrison, Orlando, 1999). The loss of earning capacity of women that experienced domestic violence was estimated to be 2% of Chile's GDP in 1996 and 1.6% of Nicaragua's GDP in 1996 (Morrison, Orlando, 1999). In sum, in both countries, women that suffered vio

lence earned far less than women that did not (Duvvury et al., 2013).

Methodology. Using econometric methodology, the indirect costs of missed work and lower productivity were calculated (Duvvury et al., 2013).

Type of violence. The study is based on a definition of domestic violence that compromises physical and sexual violence which is categorized into moderate and severe.

Sample. Regarding Chile, surveys were conducted on a sample of 310 women in Santiago de Chile gathering data on the prevalence of domestic violence and the effects on labour forced participation and earnings, utilization of health services and children's education (Laing, Bobic, 2002).

Cost categories. The indirect costs of missed work and lower productivity are indirect costs to the individual. They were calculated for impacts on:

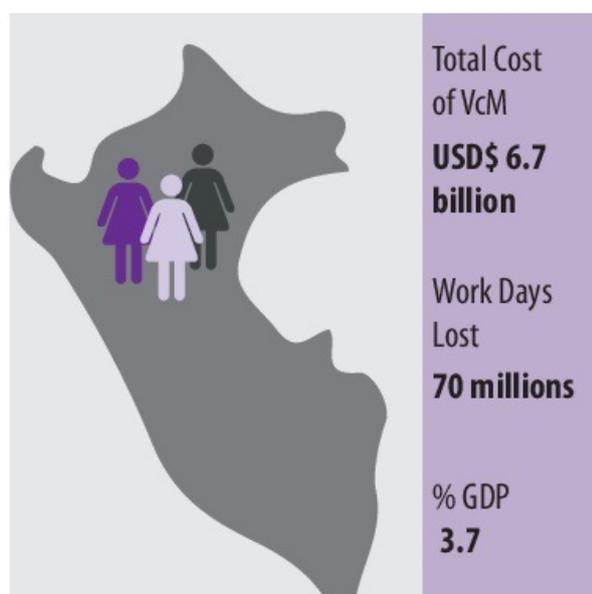
- o Employment;

- Health;
- Children’s education.

Interestingly, Morrison and Orlando already mentioned that these costs were only first-round effects, because the losses will further lead to a

IV. Peru

Elaborated Methodology to Calculate the Costs to Business



Author’s illustration.
Information Source: Vara Horna, 2013.

Summary. In Peru, productivity loss in businesses due to VAW is equivalent to 70 million days of work days lost per year. That represents an amount of USD\$ 6.7 billion, a 3.7% of Peru’s GDP. The study of Vara-Horna (2013), in contrast to other former studies, includes in the estimation of the costs of VAW presentism of the victims, the perpetrators³ and the personnel that witnesses violent acts. Evidence shows that not only the victims, but also the perpetrators generate a significant impact on the costs of VAW (Vara Horna, 2013).

Based on this study, the scholarship programme Impact of VAW on businesses was developed in collaboration with ComVoMujer (GIZ) that allowed undergraduate students to write scientific articles on that topic. In the realm of this programme, Asencios-Gonzales (2015) found that in the aftermath of VAW, the commercial district Gamarra in Lima loses USD\$ 8 888 673 per year as a consequence of presentism. Likewise, Díaz (2015) showed that an exporting Peruvian textile enterprise loses US\$ 604 092 every year due to VAW. The two re-

² See Chapter on Viet Nam: Recent Approach: Social Accounting Matrix.

³ Victims refers to women that experienced violence by their partner, while perpetrator refers the he male abusive partner.

cently mentioned studies will not further be analysed because of their narrow scope of investigation.

All mentioned studies applied the accounting methodology. In the following, the study of Vara Horna (2013)

Pioneer Study on Domestic Level

Results. In Peru, 23.44% of female workers reported that they have experienced at least one type of violence through their current or former partner in the last 12 months, with an average of 4 incidents per year. Additionally, 25% of male workers affirmed that they have attacked their current or former partners in the last 12 months. In total, the cost of VAW to business is about USD\$ 6.7 billion. Presentism accounts for 73% of the costs of VAW to businesses in Peru. The study of Vara Horna (2013) was the first to estimate these costs at domestic level.

Methodology. This study applies the accounting methodology with a focus on the indirect costs of human capital (value of lost work time due to absenteeism or low productivity) and friction (value of loss due to rotation of personnel). The objectives of this study are to: (1) determinate the prevalence and incidence of VAW, (2) determine the impact of VAW through absenteeism, (3) determine the costs of VAW to businesses as a consequence of the loss of labour productivity. The costs through delay were not significant.

Design of the study. The study applied a systematic 360°-design which means that female and male workers

as well as the subsequent methodological development will be analysed. Moreover, this chapter presents a best practice of the application of the elaborated methodology.

as well as witnesses of VAW and managers were surveyed.

Type of violence. The study is based on the concept of VAW which defines the presence of at least one form of psychologic, physical, sexual and economic violence and their consequences or damage committed by their current or former partner, in a determined period of time.

Sample. The information originates from 211 companies in five cities (Lima, Cuzco, Lambayeque, Juliaca e Iquitos). 1309 female and 1881 workers, as well as 208 managers were interviewed. The majority of the companies belong to the service and commercial sector (48.5%) and manufacturing (42.3%).

Instruments. In the case of the managers, a structured interview guide was used. Whereas for the female and male workers a structured questionnaire in two respective versions was applied.

Interview guide. Six central aspects were explored:

- General Information: Demographic information e.g. age, civil status, number of children, other persons depending on the women and labour information e.g. monthly wages, working

- hours per week, seniority and contract modalities.
- Witnesses of VAW through the current or former partner;
- Labour implications of VAW;
- Absenteeism and delay;
- Direct investment of the companies prior to VAW.

Besides, the frequency of the following categories was surveyed:

Six types of violent attacks:

- Appropriation of income;
- Threats, insults and intimidation;
- Physical attacks (beating, slaps, kicks, bites);
- Physical attacks with objects;
- Sexual violence;
- Physical harm as a consequence of VAW that requires medical attention or rest.

Three specific behaviours:

- Threat or harassment by telephone, e-mail or text message;
- Threat or harassment at work;
- Threat, insults and beating at work or leaving work.

Three periods of VAW at home or in the workplace:

- Current prevalence (violent attack in the last 12 months);
- Lifetime prevalence (violent attack at any time of a current or former relationship);
- Ceasing VAW (violent attack prior to the last 12 months).

Five specific consequences in the labour context:

- Delay and lost meetings;
- Not attending work;
- Decline in concentration or low work performance;

- Scolding, warnings or raising the boss's attention;
- Discharge.

Prevalence of VAW according to witnesses:

- Suspicions;
- Knowledge through testimony;
- Knowledge through observation.

Costs of absenteeism. It is defined as an amount of lost work per day in terms of labour productivity. The frequency of missed days at work during the last four weeks are surveyed, giving the following reasons as possibilities to answer:

- Physical or mental health attention;
- Health care or care of other family members;
- Legal, financial or personal attention;
- Other reasons.

Costs of presentism. It is defined as the time in that the employees assisted work, but were not productive during the last four weeks. The frequency of the following situations was surveyed:

- Concentration difficulties.
- Works more slowly than normal.
- Fatigue at work.
- Be present but not working.
- Left work because something affected the women.

Costs of delay. It is defined as the time lost due to delay. Evaluating a timeframe of four weeks, it considers the numbers of days' women were late: (1) between 15 and 30 minutes; (2) between 31 and 60 minutes; (3) more than one hour of delay.

Calculation. The costs of VAW to businesses are estimated by adding the lost days of each category (absenteeism, presentism and rotation) for each source of information (victim, perpetrator, witness) of VAW. The quantity of lost days by victim and perpetrator is then multiplied by the number of victims and perpetrators of the economically adequate employed population (PEAO) of Peru. In the case of the witnesses, the calculation proceeds in the same way, but without the impacts on the victims and perpetrators. The sum is

next divided by 288 days of work per year (the average of a Peruvian work year). Obtaining the work force lost by VAW (in persons), this value is multiplied by the national value of the national average of labour productivity, which surpasses 72 thousand soles per year (manufacturing companies) and 76 thousand 963 soles per year (commercial and service companies). As a result, this outcome is the aggregated loss of VAW to businesses (Vara-Hora, 2013).

Advantages	Limitations
<p>Systematic scope of investigation 360° that incorporates the whole entrepreneurship.</p> <p>Estimation of indirect costs based on lost time (absenteeism, presentism and rotation).</p> <p>Four types of violence have been considered in the measurements (psychologic, physical, sexual, economic).</p> <p>Basic for the elaboration of a management model to prevent VAW in companies by calculating the cost-benefit and return on investment.</p>	<p>Sub estimation of the real costs as the cost categories are selected in an arbitrary manner.</p> <p>The analysed companies originate from manufacturing and commercial and service provision which comprises 90.8% and leave a 9.1% of companies of other sectors out.</p>

Subsequent Methodological Development

Methodological Progress. In this study, the impact of VAW on labour productivity will be compared between Peru; Bolivia and Paraguay. Not only the accounting methodology

was used, but also Propensity Score Matching (PSM) in order to avoid a biased estimation (Vara Horna, 2016).

Design of the study. The descriptive design of the study includes the survey of employees and witnesses. In comparison to the study of Vara Horna in 2013, managers were not considered.

Amplified data base. In the case of Peru, primary data (1343 surveys with employees) of four companies was added to the data base of 2013 by using the updated methodology of Bolivia and Paraguay. Moreover, the new data completed the missing information in the scales of absenteeism⁴ and presentism⁵. Altogether, the three countries comprised a sample of 19 333 collaborators (8 153 women and 11 180 men) of 270 middle- and big-sized companies.

Adapted instruments. The questionnaires have been adapted with regard to the language and contexts of the three countries.

Calculation. The same algorithms were used as in the study of Vara Horna 2013 in order to calculate the aggregated value the companies lose due to VAW. Two cost categories were considered, absenteeism and presentism. For the comparison with the respective GDP, estimations of the World Bank and the Peruvian Central Reserve Bank for the year 2014 were considered.

Pioneer Study on Micro-enterprises

Results. This study is one the first worldwide⁶ to estimate the economic

Results. In Peru, 54.0% of female employees and 50.7% of male employees have directly been involved in current or former intimate partner relationships. VAW occurs to 40.7% of employees at home and to 12.3% in the workplace. The types of violent attacks are mostly insults and threats (14.8% at home and harassment and threats on the telephone and by e-mail (6.9% in the workplace). 31.0% of employees have witnessed VAW and 67.7% of the witnesses reported labour consequences. As a consequence of VAW, affected women lose 27.6 working days per year, while a male colleague loses 38.4 and a witness 6.1 working days annually. In sum, the total costs of VAW in Peru are equivalent to USD\$ 11 453.4 million that represents 5.72% of the GDP (Vara Horna, 2016).

Progress in the Methodology
<p>Accounting Methodology plus PSM. Amplified data base, including four more companies. Adaptable questionnaires (language and context). Application of the management model to prevent VAW by INTI Drugs – Bolivia, estimating cost-benefit and return on investment.</p>

impact of VAW in micro-enterprises at the domestic level. In Peru, micro-

⁴ Absenteeism: Se agregaron dos ítems para Bolivia y Paraguay: Porque estaba enferma o tenía una dolencia; porque no tenía dinero para movilizarse.

⁵ Presentismo: Se agregaron dos ítems para Bolivia y Paraguay: Preocupación familiar; accidentes o incidentes laborales.

⁶ The first study worldwide based on primary data and including formal micro-enterprises.

enterprises represent more than 96.2% of the business activity. 33.8% of those micro-enterprises are owned by women (INEI, 2014) of which 71.2% has been attacked by their current or former partner, at least one time in their relationship. Every female owner who experiences VAW loses 47.3 productive days and USD\$ 9 130 per year. At the domestic level, Peruvian micro-enterprises led by women lose between USD\$ 1982 and 2417 million per year caused by VAW. 90% of that loss corresponds to opportunity costs and 10% to out-of-pocket expenditures. The total cost represents 1.2% of GDP. Moreover, the study shows that the subordination of women is as harmful as the violence itself because it leads to the impoverishment of their capacities.

Methodology. The study applies the econometric methodology as it used contra factual scenarios (groups of women experiencing and non-experiencing VAW) in order to determine the economic impact of VAW, excluding other impacts.

Design of the study. The study is descriptive.

Sample. A random sample was selected. The survey was addressed to 1283 female owners of micro-enterprises, but in the end only 357 women in 10 cities were taken into account. The other micro-enterprises were not included because in situ it was found that the owners were men, the women had no influence at all, the businesses were not running or could not be detected.

Instruments. A structured questionnaire was used which was addressed

to the female owners of micro-enterprises. It contained the following areas and variables:

- Demographic information: age, sex, type of relation she has with her business partner, level of education, if she has an intimate partner, duration of relationship and number of children.
- Commercial information: sales revenue, hours dedicated to business, payments and expenditure.
- Financial and credit information: request, destination, delays of payment, partner demanded loan.
- Inequitable gender: Level of inequitable control the female owners suffer from their partners, which limits their autonomy in decision taking.
- Experienced VAW: Additive scale of physical, psychological, sexual and economic violence.
- Call for support after VAW: Frequency.
- Costs of absenteeism: The amount of lost labour per absent day in terms of labour productivity.
- Costs of presentism: Time the female owners dedicated to business put were not productive.
- Days of work incapacity by morbidity: Number of days the women lost due to physical or emotional harm.
- Out-of-pocket expenditures by morbidity: How much money the women have to pay to cover their health expenditures per year.

Calculation. The calculation followed two different tracks: a) days lost for daily costs in terms of sales and b) mean difference in “value

added" (value of total annual production less the intermediate expenses of production) according to if the owner of the enterprise experienced

VAW or not. Both alternatives are comparable (Vara Horna, 2015).

Advantages	Limitations
<p>Impacts on women's health are considered (consequences of VAW on physical and mental health).</p> <p>Heterogeneous group of female owners, so does the impact and intensity of VAW vary. Three scenarios could empirically be verified: "movilidad"⁷, "contingente"⁸ and "separatista"⁹. Consequently, different types of intervention and support is required.</p> <p>Also, the three scenarios showed a (curvilinear) relation between VAW and empowerment.</p> <p>Evaluation of Microcredits (advantages and dangers).</p>	<p>Sub estimation of the real cost because the invisible VAW in informal micro-enterprises could not be considered.</p> <p>No proposal for a management model to prevent VAW in small businesses.</p>

⁷ Movilidad: The woman lives with her intimate partner, is the only owner of the business or shares it with other family members, but not with her partner.

⁸ Contingente: The woman lives with her intimate partner and is co-owner of the business.

⁹ Separatista: The woman does not live with her partner, she is the only owner of the business or shares it with other family members, but not with her partner.

Best Practice: Cost-Meter

General Considerations. In 2017, ComVoMujer (GIZ) and USMP created an online programme/software in order to measure the costs of VAW in companies, the Cost-Meter. It automatizes the process of analysis when estimating the costs of VAW. With this program, it is possible for companies to measure absenteeism and presentism (which covers 98% of the costs to businesses) of female and male employees autonomously. This is the first step for companies in order to take action in the prevention of VAW, to achieve a working environment free from violence and increase the commitment and motivation of the employees to contribute to that end.

The Cost-Meter provides several documents to guarantee the correct use of the tool and to obtain valid and reliable results:

- Manual for the use of the programme: Explanation of the data collection, their digitalization, feeding data into the system, the interpretation of the results and their presentation.

- Manual to enter data into the system: Explanation of how to enter information into the surveys of the programme, which coding has to be used for every answer and general recommendations to use the tool.
- Equivalent questionnaires for female and male employees: Both questionnaires have been validated in Peru; Bolivia and Paraguay.¹⁰

Methodology. The Cost-Meter measures the corporate cost of VAW in terms of psychologic, physic, sexual and economic violence in any type of current or former intimate partner relationship.

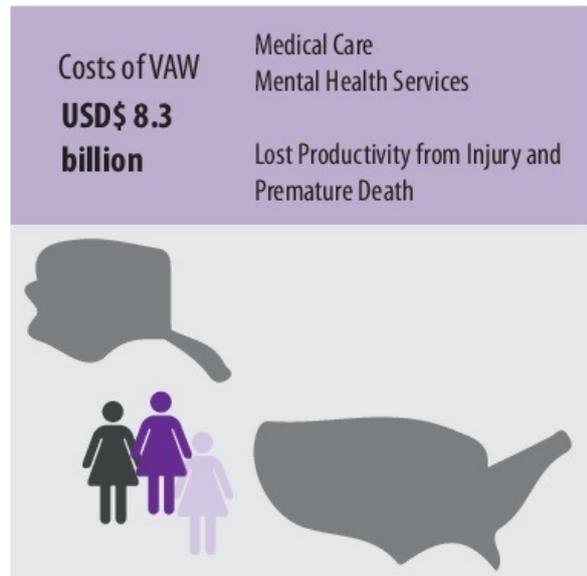
The Cost-Meter is part of a theoretical framework that considers the impacts of VAW on labour productivity by absenteeism, presentism, delay and rotation of personnel to female victims and male aggressors. The tool applies the accounting methodology. Absenteeism and presentism are calculated in working days lost and costs, based on the wages of the personnel. (GIZ and USMP, 2017).

¹⁰ All materials are available here: <http://www.mujereslibresdeviolencia.usmp.edu.pe/costometro-2/>.

Advantages	Limitations
<p>Comprehensive diagnosis of two of the impacts of VAW (absenteeism and presentism) that represent 98% of the costs to businesses.</p> <p>Online estimation of the costs to the companies and automatization of the calculation process.</p> <p>Quality and reliability of the outcomes promoted by online manuals, trained personnel and ethical guidelines.</p> <p>Standardized questionnaires for women and men.</p>	<p>Designed to measure the costs only of personnel that is directly involved in VAW, victims and perpetrators. Witnesses are not considered.</p> <p>Addresses medium and big-sized companies only, with a minimum of 100 workers.</p>

V. United States

Calculating Costs for Medical Care and Mental Health



Author's illustration.
Information Source: Max et al., 2004.

Summary of early studies. Studies on the costs of VAW were, like in Australia; Canada and Chile, already carried out in the 90's. An early study of Laurence and Spalter-Roth in 1996 dealt with the measurement of the costs of domestic violence against women and the cost-effectiveness of interventions. It can be considered as an initial proposal for further research (Laurence and Spalter-Roth, 1996).

In the same year, another study was realized that tackled the issue from another angle, it investigated all crimes of violence including violence against women. Tangible and intangible costs were estimated to be USD\$ 555 billion due to property damage and loss, medical care for injuries, insurance, victim services, lost earnings and housework Pain

and suffering, and death. Data sources were the FBI Uniform Crime Reports, the National Crime Victimization Survey and other nationally representative sample surveys, as well as prior research.

A third study by Falley et al. focused in 1999 on VAW in partner relationships, including physical and sexual violence in the US army. A survey was carried out addressing 2079 persons (male and female). Further data came from US Army budgetary documents. Based on the cost categories e.g. productivity loss, absenteeism, separation, replacement and transfer costs, the study found that the costs of VAW are at least USD\$ 250 million (Duvvury, 2013).

Costs of IPV to the Health Sector

More recently, costing studies on IPV in the United States focus on direct and indirect costs of health care and productivity loss. In the United States, IPV is especially acknowledged as an issue of the health sector.

Results. A study by the National Center for Injury Prevention and Control calculated an annual cost of intimate partner rape, physical assault and stalking to be USD\$ 5.8 billion. USD\$ 4.1 billion of the total cost arises from direct medical and mental health care services. The estimated total value of days lost from employment and household chores is \$858.6 million. The value of lost productivity from employment is \$727.8 million, representing 84.8% of the total; the value of lost productivity from household chores is \$130.8 million. More than 13.5 million total days are lost from job and housework productivity, which is equivalent to 47,339 years per person. (National Center for Injury Prevention and Control, 2003).

Max et al. found in 2004 that the costs for IPV against women accounted USD\$ 5.8 billion in 1995. These costs included USD\$ 320 million for rapes, USD\$ 4.2 billion for physical assault, USD\$ 342 million for stalking, and USD\$ 893 million for murders. Updated to 2003, the total cost was estimated to be over \$8.3 billion (Max et al., 2004).

Methodology. In both studies, the accounting methodology is used to calculate the costs of IPV to direct and indirect cost categories.

Types of violence. Current studies in the United States mainly refer to the definition of intimate partner violence (IPV): Intimate partner violence is violence committed by a spouse, ex-spouse or current or former boyfriend or girlfriend. It can occur among heterosexual or same-sex couples. However, this definition concentrates strongly on rape, physical assault, stalking and murders only. (National Center for Injury Prevention and Control, 2003). Max et al. use the definition of VAW (Max et al., 2004).

Data. Both studies use data from the National Violence Against Women Survey, with a sample size of 8,000 women that were injured in the aftermath of IPV and the Medical Expenditure Panel Survey. (National Center for Injury Prevention and Control, 2003).

Cost categories. The two studies classified respectively two cost categories. In the study of 2003 costs were calculated for:

- Medical costs from injuries only;
- Lost time at paid and unpaid work. (National Center for Injury Prevention and Control, 2003).

The study of Max et al. classified the cost categories as follows:

- Medical care and mental health services;
- Lost productivity from injury and premature death (Max et al., 2004).

Calculation. The more recent study of Max et al. calculated direct costs for:

- hospitals, physician and other professional services;
- mental health services; and
- ambulance transport.

Each category is estimated as the product of the cost unit of a service used and the number of units used 1995. The total direct costs are the accumulated to a total expenditure.

The indirect costs are calculated for the lost productivity of survivors and those who die prematurely.

Lost productivity costs are measured using the human capital approach. It “monetizes the present value of lost output due to reduced or lost productivity caused by IPV, including the value of lost work days and an imputed value for lost housekeeping days due to injury and disability. The

value of lost productivity is calculated as the number of days of lost activity during the year times average daily earnings, real or imputed, by age. The value of household production is based on time-motion studies of housekeeping activities in which time is valued using wages paid to the worker who could be paid to perform the task e.g. a cook or childcare worker. The value of premature mortality resulting from IPV is the product of the number of deaths and the expected present value of woman’s future earnings, both from the labour market and an imputed value for household production. The calculation takes into account life expectancy for women of different age groups, changing patterns of earnings at successive ages, varying labour force participation rates, and an imputed value for household production.” (Max et al., 2004).

Advantages	Limitations
<p>Calculations were significantly improved in comparison to further studies as they are based on the most current and representative estimates of victimization and utilization of services.</p> <p>Estimations are specific to IPV against women, not part of crimes like rape.</p> <p>Estimates were disaggregated to medical care, mental health services and indirect costs.</p> <p>Standard calculation errors were considered.</p>	<p>Sub estimation of real costs due to unreported IPV incidents.</p> <p>Inconsistency in data collection as police reports and hospital records contain varying information regarding types of incidents, victim and perpetrator characteristics.</p> <p>Unrealized mental health and medical needs have not been considered. Women that suffer from IPV may not have access to medical services due to controlling or coercion by their partners.</p>

Cost-benefits of Civil Protective Orders

A recent study by T. K. Logan et al. in 2012 chose a completely different approach than all the other studies presented in this paper. Instead of calculating the costs due to IPV or another concept of violence against women, it calculated the potential cost-benefit in case a woman obtains a civil protective order against a male abusive partner. In sum, the objective of this study was to estimate the economic impact of civil protective orders by avoided costs of IPV.

Results. It was estimated that civil protective orders have saved taxpayers of one small state USD\$ 85 million in one year (2006-2007).

Type of violence. It is based on the definition of partner violence against women by men.

Sample. 213 women who have obtained a civil protective order against a male abusive partner have been interviewed.

Cost categories. Costs were calculated for the following categories:

- Health service utilization for doctor visits, dental visits, emergency room visits, urgent treatment care, hospital use, ambulance, physical therapy visits each month, visits to mental health counsellors, psychiatrists, marriage counsellors, ministerial counsellors;
- Participation in group therapy for mental health;
- Substance abuse and residential substance-abuse treatment;
- Use of victim advocate, crisis line, in-person crisis counsellor;
- Nights in a domestic violence shelter or a homeless shelter;
- Use of legal services including private attorneys and legal aid attorneys.

In contrast to other costing studies, calculations are not made on an aggregate, but on an individual level. This allows the consideration of a wider range of costs of partner violence (T. K. Logan et al. in 2012).

VI. Viet Nam

Estimating Macroeconomic Loss



Author's illustration.
Information Source: Duvvury et al. 2012.

Summary. Two costing studies have been realized in Viet Nam. The first was carried out by Duvvury et al. in 2012. It estimated the costs of domestic violence against women on the local level by using econometric and accounting methodology.

In 2017, Raghavendra et al. (2017) present the first attempt to apply a Social Accounting Matrix (SAM) based multiplier analysis in order to estimate the macroeconomic loss due to VAW. They explain the problem of lacking policies on VAW with the fact that most approaches that deal with costs of VAW aggregate the losses on individual level e.g. the loss of income for the women affected. What is missing is a translation of the individual costs on micro-

level to the calculation of macroeconomic loss. With its recently published study, they introduce a new approach that estimates the macroeconomic loss due to VAW. Following their argumentation, VAW creates a constant macroeconomic loss through permanent invisible leakage to the circular flow of the economy. While the current estimates of VAW in literature only provide the aggregated loss of income, the methodology of Social Accounting enables the consideration of the whole macroeconomic loss with regard to output, demand and structural interlinkages of the economy. As a consequence, the study is able to calculate the income and multiplier loss due to VAW. (Raghvendra et al., 2017).

Costs of VAW on Domestic Level

Results. The study found that on the household level, the out-of-pocket costs of women accessing services was equivalent to 21% of their average monthly income. Lost earnings were calculated to be 13.4% of the monthly household income. On the domestic level, the total cost of out-of-pocket expenses, lost earnings and missed household work was estimated to be USD\$ 1.14 billion which is equivalent to 1.41% of the Viet Nam's GDP. Besides, the productivity loss was estimated to be USD\$ 2.26 billion or 1.78% of the GDP.

Type of violence. The study is based on the concept of domestic violence against women by an intimate partner including physical, sexual and psychological violence against women by a current or former intimate partner.

Sample. A household survey with 1053 women across seven provinces as well as 10 qualitative interviews with female survivors of violence. Moreover, surveys with service providers were included. 63.7% of that women suffered from psychological, physical or sexual violence in their life, 39% in the last 12 months. It revealed that on individual level, both women and men missed work as a consequence of VAW, 14% of violent incidents forced women to take off work, 7% of incidents for men. Together, missed paid and unpaid work due to VAW is equal to 0.94% of the GDP.

Cost classification. The study calculated the costs of IPV for the following categories at individual and household level as well as costs to business:

- Out-of-pocket expenditures for accessing services: medical, police, court, shelter, legal aid;
- Foregone earnings due to missed paid and unpaid work;
- Productivity impact.

The study does not include non-monetary costs e.g. health impacts or inter-generational transmission of violence due to a lack of applicability of existing methodologies to developing countries.

Instruments. In the sample of women, the following information was considered:

- Socio-economic information: Age of women; Education of women/husband; Landholding size; Monthly household income; Duration of marriage; Number of children;
- Current and lifetime experience with physical, sexual, and psychological violence;
- Number of incidents in the last 12 months;
- Direct costs: Out-of-pocket expenses related to accessing services (health, police, judiciary and other informal authorities)
- Indirect Costs: Decreased productivity at household work; Increased absenteeism;
- School attendance and completion/drop-out of children.

The service provider questionnaires contained these aspects:

- Total number of DV cases handled by each service provider in the past 12 months;
- Operating budget (and line items) for each service provider in the past 12 months;
- Percent of cases in the service provision involving DV;
- Information on costs associated with dealing/resolving DV related case including staff time, implementation of screening protocols, training costs, and materials costs;
- Information on all services provided including hot line, shelter, legal aid, psychiatric services, vocational skills, food and other income support as well as cost of referrals to other service providers.

Calculation. Apart from calculations of costs of IPV on individual level, Duvvury et al. (2012) already started calculating the sectoral loss of output due to IPV. However, the study was limited by a lack of specification on intersectoral linkages, which could be overcome by the subsequent study of 2017, which will be presented in the next part.

Ethical considerations. When interviewing women who have experienced violence, it is crucial to work with in an adequate atmosphere and with trained personnel to guarantee the optimal data gathering. For this study, a manual for field workers was developed based on WHO ethical guidelines for research on violence against women. The field team conducting the survey received five day training covering different aspects of study objectives, survey methodology, interviewing techniques and other relevant issues of the field survey (Duvvury et al., 2012).

Recent Approach: Social Accounting Matrix (SAM)

Results. The macroeconomic loss of Viet Nam due to VAW 0.96% of the GDP (factor cost) and 0.82% of the GDP (market prices). As the sectoral contribution to the total loss of income had been analysed, it was found that the agricultural sector contributes to that loss with almost 40%, followed by manufacturing with 16% and retail and wholesale with 14.5%. In general, the loss of income is prevalent both in urban and rural areas. Multiplier analysis further found that income loss is more significant in major sectors with high linkages to other areas of the economy such as agriculture, retail and wholesale. Thereby, the loss on output and income is especially high in agriculture and the sectors linked to it. Finally, a macroeconomic policy perspective allows us to draw conclusions on governments expenses: As the loss due to VAW causes a permanent, invisible leakage, the effectiveness of government spending on social welfare programs might be weakened or even neutralized.

Methodology. The study provides an approach to estimate the overall loss caused by VAW to the economy, which means macroeconomic loss. It applies the methodology of social accounting matrix (SAM) that takes into account:

- Output;
- Demand; and
- Structural interlinkages of the economies.

In that way, it aims at calculating both:

- Direct loss on the level of aggregated income; and
- Indirect loss due to interstructural linkages.

The latter is also known as multiplier effect or multiplier loss. Although this concept is already acknowledged by international literature, Raghavendra et al. (2017) provide the first study that contains a method to estimate such loss. The authors argue that with the results of that study, with estimations based on missed days at work and productivity loss, the need to include the issue of IPV into macroeconomic policy discourse becomes inevitable. Most existing studies provide an aggregated loss of income, but never on the level of macroeconomic loss. Altogether, the study provides a pioneering approach in this field.

The Case of Viet Nam. The study applies their approach to the economy Viet Nam. This is particularly important because most of the costing studies on IPV/VAW deal with industrialized countries. Studies in medium and lower-income countries face difficulties in terms of lacking service provision and legal enforcement for IPV/VAW.

Type of violence. There were three key types of violence considered within the study: psychological (verbal abuse, humiliation and intimidation, or threat of violence), physical (such as slapping, beating, hitting, and kicking), and sexual (forced or other forms of coerced sex when the women did not want it or did not like the way it was done) suffered by

women during the last twelve months (to obtain current prevalence) and also during their lifetime (to obtain lifetime prevalence).

Sample. 1,053 women were surveyed, from which 671 (63.7%) reported having suffered from at least one incident of psychological, physical or sexual violence in their lifetime. 414 women (39%) have experienced at least one of the types of violence in the last year.

Data. Secondary sources are basic to the study. First, previous research on the prevalence of IPV is used that gives information on incidents of types of violence and missed days of work. This data comes from a former Viet Nam field study by Duvvury et al. in 2012. Second, data is used on employment patterns in Viet Nam in order to analyse the general structure of the economy. Additionally, the 2011 SAM provides a data matrix on sectoral production and foreign trade, factor income generation and distribution, and household expenditure.

Instrument. The SAM is an instrument of macroeconomic policy analysis. It is organized as a square ma-

trix that gives information on transactions in economies, usually during one year. In that way, interconnections between sectors can be made visible. In this case, a SAM for an economy with a simple two-sector production model will be used.

Calculation. In this study, the SAM is used to estimate the loss of income due to violence in different sectors. In order to do that, first the total days lost by women and men after violent episodes must be calculated. The loss of income due to violence then is calculated for women and men in each sector. Therefore, the total workdays lost are multiplied with their respective wages. Finally, a set of equations enables the calculation of the loss of women and men in various sectors and corresponding multiplier losses.

Other findings. Apparently, men in the role of the aggressor also lose work after exerting violence on their partner. This phenomenon was already confirmed by Duvvury et al. 2012 (Viet Nam), Vara Horna, 2013 (Peru) and Darko et al. 2015 (Papua New Guinea).

Advantages	Limitations
<p>First study to estimate the macroeconomic loss due to IPV.</p> <p>Contribution to small number of studies in medium and lower-income countries.</p> <p>Estimates the loss due to IPV for different sectors of the economy.</p> <p>Considers the invisible leakage to the circular flow of economy, which can undermine, weaken, or potentially neutralize the effect of expansionary government spending on social welfare programs.</p> <p>Minimizing the macroeconomic loss due to IPV can thus be a significant contributor in achieving efficiency gains for governments' social expenditure on these programs.</p>	<p>The small sample size makes a detailed analysis of the effects by type of violence problematic, as the majority of women experienced multiple forms in an incident.</p> <p>Limited representativeness due to the fact that the study was a follow-up to a study on the national prevalence of violence to gather additional information on costs incurred by women experiencing IPV.</p> <p>Women reported men missing paid or unpaid work, and thus we cannot assure with certainty that men did so because of the violence per se.</p> <p>The Matrix is based on secondary data. The data must be disaggregated by gender in order to use it for the SAM.</p>

Conclusions

Every year, VAW causes billions of dollars of costs to the women who experienced violence through their partner, but also to governments, businesses and to the society. To measure and assess the economic cost of VAW, to add a monetary value to a social issue, is an important step in order to recognize its economic importance. It further not only raises awareness, but also allows the analysis of potential public-private strategies to intervene and prevent VAW.

The study identified and analysed the methodologies used to measure assess the costs of VAW in the 6 APEC economies Australia; Canada; Chile; Peru; the United States and Viet Nam. It found that the costing studies in the economies applied different approaches, not only in the methodology but also regarding concepts and types of violence, samples, data, instruments and the categorization of costs and cost-bearers. This is crucial as broader definitions lead to higher outcomes¹¹. Furthermore, it leads to a certain complexity of the topic and limits the comparableness of the outcomes of the economies.

The accounting approach is most prevalent in the estimation of costs caused by VAW. In order to overcome methodological limitations, econometric methodologies e.g. propensity score matching can be applied to strengthen the calculation process and the representativeness

of the results. Apart from that, there is a pioneer methodology that has been recently presented to measure not only aggregated costs, but the whole macroeconomic loss due to VAW to the economy.

Regarding the outcomes, it has to be mentioned that most cost calculations are of conservative character. This has two reasons: First, one of the major limitations to the accounting methodology is the sub estimation of the real cost. Cost categories are selected in an arbitrary manner and not all sectors of the economies as well as informal enterprises could be included. Second, vulnerable groups (e.g. indigenous, homeless, pregnant women and women with disabilities) might be excluded from statistical data like it was the case in Australia.

Australia was one of the first economies to measure the costs of VAW in the 80`s and also the first to realize a nation-wide study on costs to business. Over time, there have been a significant number of comprehensive costing studies on a domestic level, with this work continuing in recent years. Most have used the accounting methodology. What is special about the Australian case is the experience of international cooperation with Papua New Guinea, which is another economy within the APEC community. The product is a costing study which serves a practical toolkit for companies to measure the costs

¹¹ See for example the case of Australia: Outcomes of KPMG in 2009 and 2016.

of VAW and the establishment of a Coalition for women that creates strategies to prevent VAW in businesses.

Peru is the economy in which the methodology to measure the costs of VAW is most advanced. While comparatively little consideration has been given to costs in businesses, Peru has established itself a pioneer in this field. It was also one of the first countries worldwide to publish a study on the costs of VAW in micro-enterprises. The accounting, as well as econometric methodology plus Propensity Score Matching were applied in order to obtain highly representative outcomes. Clearly a best practice was the development of the Cost-Meter, an online program addressing businesses to calculate the costs of VAW in their firms. Although several limitations were found, this instrument has a high potential to contribute to the awareness of the costs caused VAW and to its prevention.

Chile provided an early key study on lost earnings to due to VAW in Chile and Nicaragua, using the econometric methodology. Its contributions are mentioned in the majority of current costing studies.

Canada's studies dealt with the costs to the individual, the justice system and productivity loss. A key contribution was the finding that costs of VAW arise long after leaving the abusive partner, which signals the long-term impacts and costs of VAW.

The United States focused on studies that revealed the costs of VAW to the health sector and lost time at paid and unpaid work. Moreover, a study

was published that tackled the topic from another perspective by calculating the potential benefits that could be gained through civil protective orders. Studies in the United States and Australia attempt to concentrate not only on the cost of VAW but to include the potential benefit of intervention and prevention programmes. This is an important approach in order to give incentives for the budgetary allocation of strategies in the public and private sector.

Finally, **Viet Nam** is the first economy to provide a methodology to estimate the full macroeconomic loss due to VAW, by applying the Social Accounting Matrix (SAM). The study was recently published and is the latest contribution to the calculation of VAW costs worldwide. The approach contributes significantly to the efficiency of international policymaking as it detects leakages in the economies' expenditure on prevention and social welfare programs.

In conclusion, advanced methodologies, pioneer studies and best practices could be identified within the 6 APEC economies under study. Now, it is critical to promote cooperation between the APEC economies and to introduce public-private strategies in order to promote the prevention of VAW in all 21 APEC economies.

First and foremost, it is crucial for the APEC economies to understand and measure the costs VAW causes to the whole economies: To the individual, to the community, to the private and public sector. VAW is an economic issue and as that must be included into the international discourse. As analysis has shown, it is

in particular important to consider the following aspects:

The interrelatedness of VAW and economic growth.

From the new methodology that was presented in Viet Nam, the SAM, we learned that it is critical for the APEC economies to understand the interrelationship between VAW and economic growth. Multiplier effects caused by VAW have an impact on the macroeconomic level which causes losses to all sectors of the economy and hinders economic growth. Moreover, these effects weaken the effectiveness of the public sector's investments in intervention and prevention programmes.

The cost of pain and suffering.

The cost of pain and suffering VAW causes to the individual is significant. It has so far only been measured in Australia on domestic level, where it comprised almost 50% of the total cost of VAW. However, it is a difficult process to monetize the real value of

pain and suffering, especially in developing country contexts, where life is not highly monetized.

Long-term costs of VAW.

The case of a Canadian costing study gave clear evidence on the costs of VAW that arise long after leaving the abusive partner. The long-term costs of VAW should consequently be taken into account when budgeting and creating prevention and intervention programmes.

The conservativeness of numbers.

Finally, it has to be stressed out that the results of costing studies are always underestimated which means that the real cost of VAW is always higher as calculated. Underrepresentation of women who belong to vulnerable groups in statistics, large informal sectors or the difficult monetization of pain and suffering are only a few examples that illustrate the limitations within the methodologies to measure the costs of VAW.

Best Practices

The methodologies developed in the APEC economies are crucial in order to get a comprehensive understanding of the costs of VAW to the individual, the government, business and

the society. Figure 9 illustrates the three best practices that have been identified in the study.

Table 9: Best Practices in the APEC economies

Australia
<p>Australia provided technical and financial assistance to Papua New Guinea which resulted in the realization of a practical-toolkit-study to measure the costs of VAW in businesses and the establishment of a business coalition for women.</p> <p>International cooperation between APEC economies is crucial in order to exchange knowledge, experiences and for to develop strategies to prevent VAW.</p>
Peru
<p>Academia and international cooperation in Peru developed a Software for companies to measure the costs of VAW at firm-level. The Peruvian Cost-Meter allows the private sector to measure the costs of VAW autonomously and at no cost.</p> <p>It is essential for the APEC economies to profit from that online-programme. Due to varying social and cultural contexts, it is possible to adapt the questionnaires. However, in this case it is recommendable to work in cooperation with the Peruvian University San Martin de Porres in order to guarantee the functioning of the algorithms.</p>
Viet Nam
<p>Viet Nam is the first economy to present a methodology to measure the macroeconomic loss caused by VAW, the Social Accounting Matrix (SAM). The results of this approach are most central to create effective strategies to prevent and intervene VAW and should be considered in international policymaking.</p> <p>It is necessary for the APEC economies to invest in the strengthening of data service in order to obtain robust and consistent data on prevalence and incidence of VAW. It is further important to collect specific, gender aggregated data on VAW and to update it continuously.</p>

Recommendations

The APEC Private-Public Dialogue on Women and the Economy in 2016 gave the incentives for the realization of this study: “On Economic Cost of Gender based Violence, we recommend APEC economies to gather standardized data across the economies on the economic costs of gender-based violence for the public and private sectors, and monitor this data. We also recommend the identification and sharing of successful

strategies like awareness raising and primary prevention programs for employers and employees or changing procurement contract criteria to include gender-based violence.” The findings of this study confirm these recommendations and based on the findings, specifies them by addressing the public sector, the private sector and proposing public-private strategies in order to prevent VAW.

Recommendations to the Public Sectors

Raising awareness.

It is essential to promote the realization of costing studies in the 21 APEC economies. Costing studies are crucial in order to understand the magnitude of the problem of VAW, and to budget and formulate policies and programmes to prevent and intervene.

Gathering specialized data.

In order to realize the costing studies, it is necessary to carry out surveys on VAW in all 21 APEC economies. The surveys should be adapted to the economies’ contexts and annually updated with regard to the necessities of public policies. Especially in economies with a large informal sector, household surveys are a key to obtain information on VAW.

Standardization of data.

It is further useful to standardize surveys in terms of gender aggregated data in order to facilitate

the application of the methodologies to measure the cost of VAW, like the SAM.

Standardization of concepts.

Besides, it would be an advantage to apply a universal concept of VAW, as there are currently many different definitions and types of intimate partner violence, spousal violence and domestic violence in the cost studies of the APEC economies. This would contribute not only to a more consistent measurement of the costs caused by VAW in terms of incidents and prevalence but also to the comparability between costing studies within and between the APEC economies.

Consideration of all forms of violence.

All forms of violence must be considered when calculating the costs of VAW to minimize the sub estimation

of the real cost: physical, sexual, psychological and economic violence. Also, the consideration of the intensity of violent attacks contributes to more specific outcomes.

Measurement of costs.

To obtain the total cost of VAW, it is necessary to include all kind of impacts, to the individual, business, government and the society.

Update of costing studies.

Costing studies has to be updated in a reasonable timeframe by taking into account methodological developments and updated secondary data.

Monitoring and Evaluation.

Data and methodological developments have to be monitored and evaluated in order to guarantee the representativeness and viability of realized costing studies.

Dissemination.

The 21 APEC economies profit from the distribution of information that

originates from methodological development as well as the outcomes of the costing studies.

International Cooperation.

As shown by the best practice of Australia and Papua New Guinea, it is an advantage to exchange information and experiences and to give financial and technical assistance to the APEC economies e.g. through funding of research and analysis. In addition, efforts of other APEC economies, like New Zealand and the Philippines, are worth considering.

Ethical Considerations.

A manual for the research on VAW and a training of field workers on survey methodologies, interview techniques and confidentiality are essential as VAW is a sensitive topic and the optimal gathering of data should be guaranteed.

Incentives.

It is crucial that the 21 APEC economies address their private sectors and give incentives to the informal sector to prevent VAW.

Recommendations to the Private Sectors

Differentiation of Methodology.

The analysis has shown that the methodology must be categorized towards big-, medium- and small-sized companies in order to apply the different approaches and exchange experiences more effectively. Furthermore, it is useful to use both primary and secondary sources to get overall information on the costs of VAW in the companies.

Software to Measure Costs.

The APEC economies can profit from the Peruvian Cost-Meter which allows the private sector to measure the costs of VAW autonomously and at no cost. It is consequently very useful to develop a version that should be available in English and be adaptable to varying social and cultural contexts. As it is only applicable

to big- and medium-sized enterprises, a respective methodology to measure the costs of VAW in micro-enterprises should be developed.

Recommendations for Public-Private Strategies

International Platform.

The exchange of information, methodological development and outcomes of costing studies could be realized through an international platform that provides access to all 21 APEC economies. Such an instrument can be included into the **APEC Women and the Economy Dashboard**. The Dashboard is an initiative that seeks to provide a snapshot of the status of women in APEC, by looking at a set of indicators in recent years, which allows measurement of the progress of women's participation in economic-related activities and women's inclusion in several aspects of life. The Dashboard is comprised of almost 80 indicators, classified in five areas previously identified as priorities by the APEC Policy Partnership of Women and the Economy (PPWE): 1) access to capital and assets; 2) access to markets; 3) skills, capacity-building and health; 4) leadership, voice and agency; and 5) innovation and technology. It is important to add indicators to measure the economic costs of VAW in the workplace e.g. absenteeism, presentism, rotation of personnel and delay and could be incorporated into section 3) on skills, capacity-building and health.

Observatory

The establishment of an observatory, on international level or respectively in the 21 economies, allows not only the exchange of knowledge and best practices, but also the monitoring and evaluation of taken actions. An observatory directly links the evidence-base that is established through the research of academia and the private sector, to policymakers. It promotes the cooperation between the APEC economies, at state level, within and between sectors. In particular, between the academia, the public and the private sector:

Academia. The academia was and is intervening and investigating in the development, implementation and improvement of methodologies to measure and interpret the economic costs of VAW.

Private Sector. The private sector of the economies is influencing to the most degree the GDP. It is crucial to measure the costs of VAW to businesses as VAW causes significant productivity loss.

Public Sector. The public sector is responsible to formulate politics, programmes and projects to reduce and prevent the costs of VAW. It is essential that governments continue to promote the realization of academic studies on the methodology to measure the costs of VAW in the APEC economies.

The above-mentioned aspects regarding standardization of data gathering and concepts, monitoring and evaluation can be realized through an observatory and thereby comprise the following functions:

- Promote the establishment of a network of experts and investigators in the methodology of measuring the costs of VAW;
- Develop a better understanding on the advantages of costing studies, specific requirements and their realization in the APEC economies;
- Disseminate methodological development, outcomes and best practices of costing studies;
- Promote the permanent estimation of the costs of VAW;
- Formulate public-private strategies as answers to the costs and the prevention of VAW;
- Promote the monitoring and evaluation;
- Promote the sensitization on VAW in mass media, schools and universities.

The findings of the study should further be addressed by the Toolkit and Action Plan of Healthy Women, Healthy Economy 2018, the PPWE Work Plan 2019-2022, the Working Groups of the Human Resources Development and the Working Groups of Small and Medium-Sized Enterprises.

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