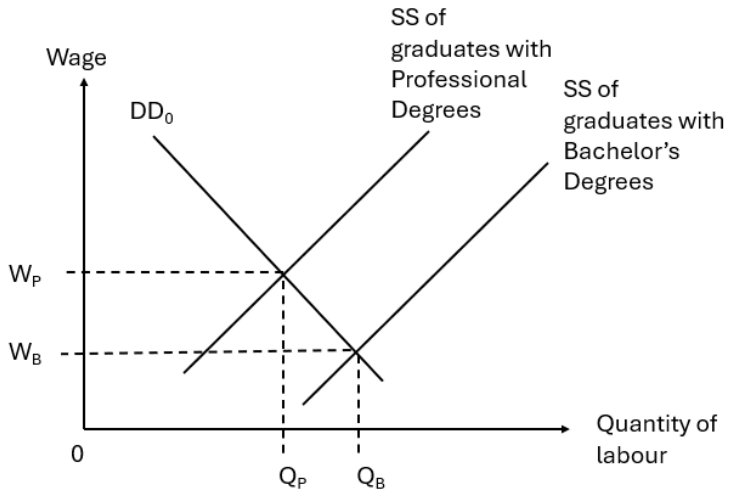
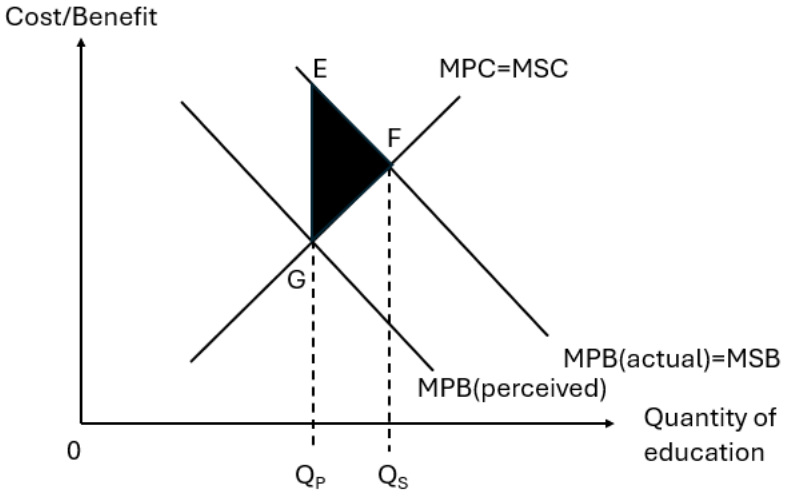
Suggested Answers for 2023 A-Level H2 P1 Qn 1: Costs and benefits of education

(a)	With reference to Figure 1, compare the potential benefits for a graduate in the US with a Bachelor's degree to a school leaver who has a High School Diploma.	[2]
	An average graduate in the US with a Bachelor's degree has higher weekly earnings compared to an average school leaver who has a High School Diploma. An average graduate in the US with a Bachelor's degree should also expect to experience a lower probability of unemployment compared to an average school leaver who has a High School Diploma	
(b)	With reference to Extract 1 and using a supply and demand diagram, explain **one** possible reason for the higher average earnings of graduates with a Professional degree compared to those with a Bachelor's degree.	[3]
	According to Extract 1, the marginal private cost of higher education, comprising tuition fees, other costs like travel and wages foregone, are substantial. As a result, due to the higher costs involved in attaining a Professional degree compared to a Bachelor's degree, individuals are less willing and able to undertake a Professional degree and supply their labour at each wage level.  **Figure 1** The supply of graduates with a Professional degree is thus lower than that with a Bachelor's degree as shown below. Assuming that demand for labour remains the same at DD_0, equilibrium wage of graduates with a Professional degree, W_P, is higher than that of graduates with a Bachelor's degree, W_B.	
(c)	'Opportunity costs may make even free schooling unaffordable for some families' (Extract 4) Explain **one** example of an opportunity cost that might make free schooling unaffordable.	[3]
	Opportunity cost is defined as the value of the next best alternative that is foregone. According to Extract 4, "Parents may need their children to work to supplement the household income". The opportunity cost of free schooling are the wages foregone by the student if he attends school rather than going for work assuming that the next best alternative is going to school. The wages foregone could have been essential for the survival of the family in the short run, making free schooling unaffordable.	

(d)	Explain how asymmetric information may lead to wrong choices in the market for education.	[4]
	Asymmetric information refers to a situation where one party in the economic transaction has more information than the other party. In other words, economic agents (e.g., consumers and producers) involved in the transaction do not have the same amount of knowledge, resulting in a distortion of incentives and inefficient market outcomes. As suggested by Extract 4, parents may have lower levels of information regarding the quality of education at a school compared to the teachers or the principal there. Parents thus perceive the benefits of education, an example being the possible higher wages their children may enjoy, to be lower than it actually is. This makes parents underestimate actual marginal private benefit MPB(actual) of education for their children, causing MPB(actual) to be higher than MPB(perceived).  **Figure 2** In Figure 2, assuming no externalities, MPB(actual) equals to marginal social benefit (MSB), and marginal private costs equals to marginal social costs (MPC=MSC). MPC is the cost of education, an example being school fees. Parents will thus have their children consume up to Q_P where MPB(perceived)=MPC. However, the socially optimal output is Q_S where MSB=MSC. This causes an under-consumption of Q_PQ_S. Between Q_P and Q_S, Area Q_PGFQ_S which is the total social benefit is greater than area Q_PEFQ_S which is the total social cost. This means that societal welfare could have been gained by increasing quantity consumed up to the socially optimal output of Q_S. This forgone societal welfare is the deadweight loss (area EFG) due to under-consumption of and under-allocation of resources to education, leading to allocative inefficiency and hence market failure.	
(e)	The government of a low-income country wishes to increase spending on education. With reference to Table 1, discuss whether the government should concentrate this increase in spending on primary education.	[8]
	Command | Discuss whether **Start Point** | Concentrate increased spending on primary education **End Point** | R1: Benefits of concentrating increased spending on primary education (should) R2: Costs of concentrating increased spending on primary education (should	

	not)
Content	Marginal External Benefit, Marginal Social Benefit, Marginal Private Benefit
Context	Government of low-income country; Market for education

As shown in Table 1, spending on education at all levels (from primary to higher) results in not only strong private returns but also results in social returns (positive externalities in consumption as defined in Extract 2). Private returns could refer to greater employment opportunities, higher future income and social standing. On the other hand, social returns refer to benefits to external parties such as employers, in terms of higher labour productivity and lower costs of production and higher profits.

R1: Should concentrate increased spending on primary education (Benefits)

As shown in Table 1, the extent of external benefits of spending on primary education (PE) (22.1%) is higher than spending on higher education (HE) (13.2%). As shown in Figure 3 below, the marginal external benefit (MEB) of primary education consumption, shown by vertical distance EF, is higher than the MEB of higher education, shown by vertical distance (AC).

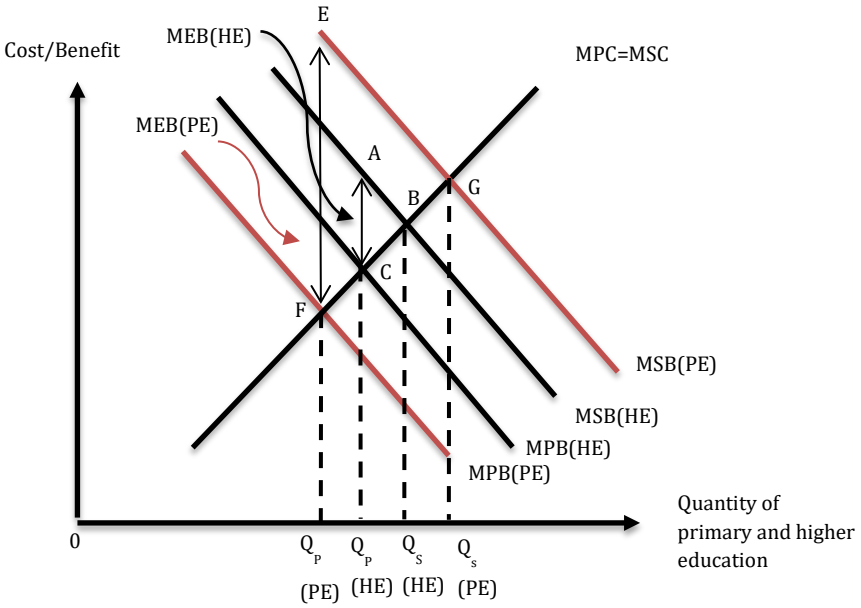


Figure 3

Rational consumers of primary education will consume up to Q_P(PE), where MPB(PE) = MPC so as to maximise utility. However, at Q_P(PE), MSB(PE) > MSC i.e. society values each additional unit of PE more than the cost of consuming that unit and will be better off if consumption of PE is increased to Q_S(PE) where MSB(PE) = MSC i.e. a DWL of area EFG exists. Using similar analysis, Q_P(HE) is at where MPB (HE) = MPC and Q_S(HE) occurs where MSB(HE) = MSC. Society will be better off if consumption of HE is increased to Q_S(HE) where MSB(HE) = MSC i.e. a DWL of area ABC exists.

Since there is higher DWL related to the consumption of PE, it can be argued that the government of a low-income country should concentrate an increase on spending on education on primary education. This can possibility be done by subsidising education consumption, which will reduce the MPC and increase consumption to Q_S(PE).

R2: Should not concentrate increased spending on primary education (Costs)

On the other hand, the private returns of higher education (26.8%) is more than private returns of primary education (25.4%), as show in the diagram above, where MPB (HE) > MPB (PE). Thus, even though the MEB (PE) > MEB (HE), the MSB(PE) is only greater than the MSB (HE) to a smaller extent (since MSB = MPB + MEB) i.e. the deadweight loss is not as large as it could have been. Thus, even though more resources should be allocated to PE, there should still be some resources that is allocated to the provision and consumption of HE, since there is still the presence of DWL in the market for HE. Similarly, governments could provide subsidies (reducing MPC) to HE students to increase the consumption of HE to Q_S(HE).

Note: the precise explanation (requiring the contrast of the different deadweight with higher vs lower MPB) would be technical, and not required for the exams, as it would require too much time for a proper analysis. However, interested students can still try to do their own analysis.

SEV

In conclusion, governments in low-income countries should concentrate any increase in spending on education on PE. However, as explained in extract 3, the social rates of returns on education are under-estimates and cannot be accurately measured. Moreover, we are assuming the same MPC for both PE and HE in the above analysis. This is unlikely to be true in reality with the MPC(HE) to be larger than the MPC(PE), since students consuming HE are likely to be old and face higher opportunity costs in terms of foregone income. Thus, Qp(HE) is likely to be lower and the DWL associated with HE, resulting in a greater divergence between Qp and Qs, creating a DWL that is even higher than that of PE, which will necessitate a concentrate of government spending on HE instead.

Level of Response and Descriptors		Marks
L2	Well-developed analysis of why governments should **and** should not concentrate their spending on primary education.	4 – 6
L1	Under-developed analysis of why governments should **and/or** should not concentrate their spending on primary education. May contain some concept errors.	1 – 3
Evaluation		
E	For a reasoned conclusion on whether governments should concentrate their spending on primary education, after consideration of the analysis provided.	1 – 2

(f) Discuss whether equity issues are more important than market failures as a reason for the government to intervene in the market for education. [10]

Command	Discuss whether
Start Point	R1: Market Failures – Allocative inefficiency R2: Equity
End Point	Reason for government intervention
Content	Equity, imperfect information/positive externalities
Context	Market for education

R1

As explained in (d), there might be underconsumption of education due to information failure i.e. consumers may not be fully aware of the true benefits of education. As shown in Figure 4 below, rational consumers consider the private benefit of education (such as higher future income) and the private costs of education (such as tuition fees, travel and accommodation) when deciding how much education to consume. They will consume up to Q_P where MPB(perceived) = MPC to maximise utility. However, they are unaware of the actual benefits, such as a higher social standing or increased access to social networks. As such, the MPB(actual) is higher than MPB(perceived). Between Q_P and Q_S, MSB > MSC, thus society would be made better off if more education are consumed since the additional benefit of consuming an additional unit of education is higher than the additional cost of consuming an additional unit of education. Societal welfare will be maximised where MSB = MSC at Q_S. However, since the market is only consuming at Q_P instead of Q_S, there is a DWL of area EFG incurred by society.

Thus, governments could intervene to improve allocative efficiency by providing a subsidy (= vertical distance EG) to reduce MPC and increase the consumption of education to Q_S, removing the DWL.

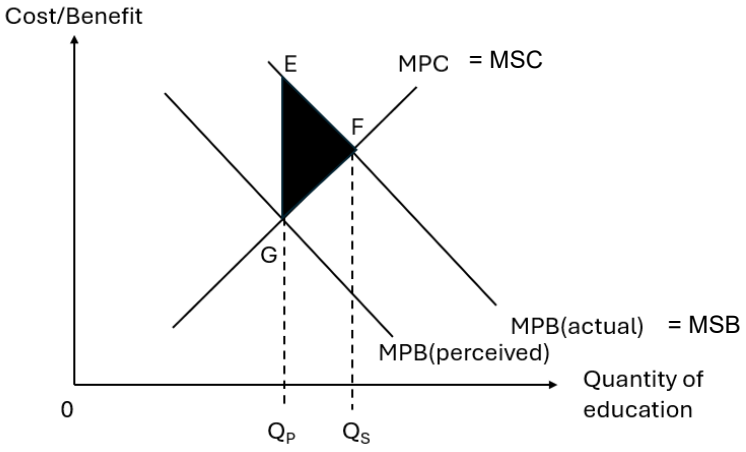


Figure 4

IEV1: However, it must be noted that the extent of information failure differs across countries. This is likely to be lower in higher-income countries, where education services are already well established, especially at the primary level. Thus, the population is likely to be more aware of the actual benefits of education, having had the opportunity to experience it personally.

R2

Another reason for government intervention is for equity reasons. Education, especially primary and secondary, is usually deemed as essential many countries as it provides a pathway for low-

income households to access better paying jobs and to move out of poverty and further up along the social ladder. With few substitutes to education in achieving this function, the demand for education is relatively price inelastic (0<PED<1). Also, as explained in Extract 4, due to a lack of resources for governments to finance schools (especially in rural areas), education tend to be provided by private operators. With profit maximisation as their objective, they are likely to charge higher prices since higher prices will lead to less than proportionate fall in quantity demanded for education. This will lead to greater revenue and profits. As such, this will reduce the ability of low-income households to consume education, leading to an inequitable distribution of this essential service.

Thus, governments should intervene to keep education affordable for low-income households, for example, by subsidising education, especially at the primary and secondary levels.

IEV2: The inequity can be exacerbated by the fact that the access to high education is dependent to access to both primary and secondary education. Thus, if low-income households are not able to access primary education in the first place, the benefits (further additional income) that comes from possessing higher education will not be available to them, thereby worsening the rich poor divide in society.

SEV: Overall, whether equity issues or market failure are more important reason for the government to intervene depends on the country being discussed. In the case of Singapore, information failure is unlikely to be a major issue as Singaporeans are generally aware of the beneifits of consuming education. On the other hand, the cost of living in these countries have risen significantly in recent years. Thus, low-income households may have a harder choice to make, especially when it comes to sending their children for higher/tertiary education (which are also more expensive), even though they might fully appreciate the benefits of education. Thus, there could be more of a case for governments in these countries to ensure the affordability and equitable acccess of higher education to low-income households.

Level of Response and Descriptors		**Marks**
L2	Well-developed analysis of how equity issues and market failures results in a need for government intervention.	5 – 7
L1	Under-developed analysis of how equity issues and/or market failures results in a need for government intervention.	1 – 4
Evaluation		
E2	For a reasoned conclusion on whether equity issues are more important than market failures as a reason for government to intervene in the market for education, after consideration of the analysis provided.	2 – 3
E1	For an evaluation/judgement that is unsubstantiated.	1